```
=> FILE REG
FILE 'REGISTRY' ENTERED AT 14:46:27 ON 13 OCT 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 American Chemical Society (ACS)


=> D HIS

     FILE 'HCA' ENTERED AT 13:50:07 ON 13 OCT 2006
L1      227250 S BATTERY OR BATTERIES OR (ELECTROCHEM? OR ELECTROLY? OR
L2        8845 S CURRENT?(3A)COLLECT?

     FILE 'REGISTRY' ENTERED AT 13:50:33 ON 13 OCT 2006
                E TITANIUM/CN
L3              1 S E3
                E TITANIA/CN
L4              1 S E3
L5            440 S (TI(L)O)/ELS (L) 2/ELC.SUB

     FILE 'HCA' ENTERED AT 13:52:04 ON 13 OCT 2006
L6          166733 S L3
L7             162 S (TITANIUM# OR TI)(3A)L2
L8          258030 S L4 OR (TITANIUM# OR TI)(W)(OXIDE# OR DIOXIDE#) OR TITAN
L9          168074 S L5
L10                QUE AIR#
L11                QUE OXIDI? OR OXIDA? OR OXIDN#
L12           4362 S L1 AND L2
L13            263 S L12 AND L6
L14            134 S L12 AND L7
L15             43 S (L13 OR L14) AND L8
L16             29 S (L13 OR L14) AND L9
L17              2 S (L15 OR L16) AND L10
L18              3 S (L15 OR L16) AND L11
L19          30082 S ANODIS? OR ANODIZ?
L20              2 S (L15 OR L16) AND L19
                   SEL L20 1-2 RN

     FILE 'REGISTRY' ENTERED AT 14:23:32 ON 13 OCT 2006
L21             22 S E1-E22
                   SEL L21 1,2,6,7,8,9,10,11,12,13,20,21,22 RN
L22             13 S E23-E35

     FILE 'HCA' ENTERED AT 14:28:37 ON 13 OCT 2006
L23         115185 S L22
L24             24 S (L15 OR L16) AND L23

     FILE 'REGISTRY' ENTERED AT 14:29:33 ON 13 OCT 2006
```

```
                SEL L21 3,4,14 RN
L25           3 S E36-E38

     FILE 'HCA' ENTERED AT 14:30:23 ON 13 OCT 2006
L26       63517 S L25
L27           7 S (L15 OR L16) AND L26
L28        9874 S (OXIDI? OR OXIDA? OR OXIDN#)(2A)(L3 OR TITANIUM# OR TI)
L29           2 S L1 AND L2 AND L28
L30        2832 S CATHOD##(3A)COLLECT?
L31           2 S L1 AND L30 AND L28
L32        2296 S L1 AND L30
L33         122 S L32 AND L6
L34          93 S (TITANIUM# OR TI)(3A)L30
L35          87 S L32 AND L34
L36          17 S (L33 OR L35) AND L8
L37          12 S (L33 OR L35) AND L9
L38           6 S (L33 OR L35) AND L10
L39          10 S (L33 OR L35) AND L11
L40           3 S (L33 OR L35) AND L19
L41          13 S L17 OR L18 OR L20 OR L27 OR L29 OR L31 OR L38 OR L40
L42          21 S (L36 OR L37 OR L39) NOT L41
L43          23 S (L16 OR L24) NOT (L41 OR L42)
L44           4 S L15 NOT (L41 OR L42 OR L43)
L45           9 S L41 AND 1840-2001/PY,PRY
L46          17 S L42 AND 1840-2001/PY,PRY
L47          11 S L43 AND 1840-2001/PY,PRY
L48           0 S L44 AND 1840-2001/PY,PRY
L49          24 S (L41 OR L42 OR L43 OR L44) NOT (L45 OR L46 OR L47)
                SAV L49 WEI698/A


=> FILE HCA
FILE 'HCA' ENTERED AT 14:46:42 ON 13 OCT 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 AMERICAN CHEMICAL SOCIETY (ACS)


=> D L45 1-9 CBIB ABS HITSTR HITIND

L45  ANSWER 1 OF 9  HCA  COPYRIGHT 2006 ACS on STN
141:91859  Oxidized titanium as a cathodic
     current collector.  Brown, W. Richard; Frysz,
     Christine A.; Smesko, Sally Ann; Takeuchi, Esther S. (USA).  U.S.
     Pat. Appl. Publ. US 2004131943 A1 20040708, 19 pp., Cont.-in-part of
     U.S. Ser. No. 918,139.  (English).  CODEN: USXXCO.  APPLICATION: US
     2003-680698 20031007.  PRIORITY: US 2001-918139 20010730.
```

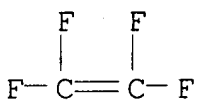
AB A titanium substrate having a thickened outer **oxidn.** layer provided thereon by a treatment process performed either in an **air** atm. at elevated temps. or through electrolytic **oxidn.** (**anodization**), is described. The thus conditioned titanium substrate serving as a **cathode current collector** for an electrode incorporated into an **electrochem. cell** exhibits improved elec. performance in comparison to the prior art techniques, i.e., elec. conducted carbon coated titanium screen and use of highly corrosion resistant materials, upon subsequent elevated temp. exposure.

IT **9002-84-0**, Ptfe **24937-79-9**, Polyvinylidene fluoride **25038-71-5**, Ethylene-tetrafluoroethylene copolymer
(binder; **oxidized titanium** as **cathodic current collector**)

RN 9002-84-0 HCA
CN Ethene, tetrafluoro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

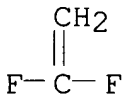
CRN 116-14-3
CMF C2 F4



RN 24937-79-9 HCA
CN Ethene, 1,1-difluoro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-38-7
CMF C2 H2 F2

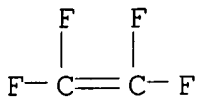


RN 25038-71-5 HCA
CN Ethene, tetrafluoro-, polymer with ethene (9CI) (CA INDEX NAME)

CM 1

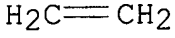
CRN 116-14-3

CMF C2 F4



CM 2

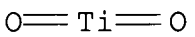
CRN 74-85-1
CMF C2 H4



IT **7440-32-6, Titanium,** uses **13463-67-7, Titanium oxide,** uses
(**oxidized titanium** as **cathodic current collector**)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M004-66
ICS H01M004-74; H01M004-62; H01M004-48; H01M004-50; H01M004-52; H01M004-58; H01M004-54; H01M010-04
INCL 429245000; 429241000; 429231500; 429219000; 429220000; 429223000; 429231700; 429224000; 429217000; 429232000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery cathode current collector oxidized titanium**
IT Fluoropolymers, uses
Polyamides, uses
Polyimides, uses
(binder; **oxidized titanium** as **cathodic current collector**)
IT **Anodization**
Battery cathodes
Primary **batteries**

(**oxidized titanium** as **cathodic current collector**)

IT Carbonaceous materials (technological products)
Metals, uses
Oxides (inorganic), uses
Sulfides, uses
(**oxidized titanium** as **cathodic current collector**)

IT Carbon black, uses
(**oxidized titanium** as **cathodic current collector**)

IT **9002-84-0**, Ptfe **24937-79-9**, Polyvinylidene fluoride **25038-71-5**, Ethylene-tetrafluoroethylene copolymer
(binder; **oxidized titanium** as **cathodic current collector**)

IT 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide, uses 1344-70-3, Copper oxide **7440-32-6**, **Titanium**, uses 7440-44-0, Carbon, uses 11104-61-3, Cobalt oxide 11105-02-5, Silver vanadium oxide 11115-78-9, Copper sulfide 11126-12-8, Iron sulfide 12039-13-3, **Titanium** sulfide (TiS2) 12068-85-8, Iron disulfide 12789-09-2, Copper vanadium oxide **13463-67-7**, **Titanium oxide**, uses 51311-17-2, Carbon fluoride 181183-66-4, Copper Silver vanadium oxide
(**oxidized titanium** as **cathodic current collector**)

IT 7782-42-5, Graphite, uses
(**oxidized titanium** as **cathodic current collector**)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 12597-68-1, Stainless steel, uses
(powder; **oxidized titanium** as **cathodic current collector**)

L45 ANSWER 2 OF 9 HCA COPYRIGHT 2006 ACS on STN
139:39168 **Oxidized titanium** as a **cathodic current collector**. Brown, W. Richard; Frysz, Christine A.; Smesko, Sally Ann; Takeuchi, Esther S. (USA). U.S. Pat. Appl. Publ. US 2003113632 A1 20030619, 18 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-918139 20010730.

AB A titanium substrate having a thickened outer **oxidn.** layer provided thereon by a treatment process performed either in an **air** atm. at elevated temps. or through electrolytic **oxidn.** (**anodization**), is disclosed. The thus conditioned titanium substrate serving as a **cathode current collector** for an electrode incorporated into an **electrochem. cell** exhibits improved

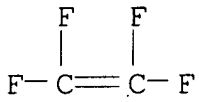
elec. performance in comparison to the prior art techniques, i.e., elec. conducted carbon coated titanium screen and use of highly corrosion resistant materials, upon subsequent elevated temp. exposure.

IT **9002-84-0**, Ptfe **24937-79-9**, Polyvinylidenefluoride **25038-71-5**, Ethylene tetrafluoroethylene copolymer
(binder; **oxidized titanium** as **cathodic current collector**)

RN 9002-84-0 HCA
CN Ethene, tetrafluoro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

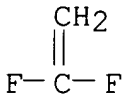
CRN 116-14-3
CMF C2 F4



RN 24937-79-9 HCA
CN Ethene, 1,1-difluoro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

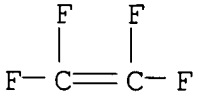
CRN 75-38-7
CMF C2 H2 F2



RN 25038-71-5 HCA
CN Ethene, tetrafluoro-, polymer with ethene (9CI) (CA INDEX NAME)

CM 1

CRN 116-14-3
CMF C2 F4



CM 2

CRN 74-85-1
CMF C2 H4

$H_2C{=}CH_2$

IT **7440-32-6, Titanium**, uses **13463-67-7, Titanium oxide**, uses
(**oxidized titanium** as **cathodic current collector**)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

IC ICM H01M004-66
ICS H01M004-70; H01M004-48; H01M004-50; H01M004-52; H01M004-54; H01M004-58; C25D011-34
INCL 429245000; 429241000; 429219000; 429220000; 429224000; 429231500; 429223000; 429231800; 429221000; 429231700
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72
ST **battery cathodic current collector oxidized titanium**
IT Fluoropolymers, uses
Polyamides, uses
Polyimides, uses
(binder; **oxidized titanium** as **cathodic current collector**)
IT Primary **batteries**
(lithium, Li-carbon fluoride; **oxidized titanium** as **cathodic current collector**)
IT **Anodization**
Battery cathodes
Oxidation, electrochemical
(**oxidized titanium** as **cathodic current collector**)
IT Carbonaceous materials (technological products)
Metals, uses

Oxides (inorganic), uses
Sulfides, uses
(**oxidized titanium** as **cathodic current collector**)

IT Carbon black, uses
(**oxidized titanium** as **cathodic current collector**)

IT **9002-84-0**, Ptfe **24937-79-9**, Polyvinylidenefluoride **25038-71-5**, Ethylene tetrafluoroethylene copolymer
(binder; **oxidized titanium** as **cathodic current collector**)

IT 1313-13-9, Manganese dioxide, uses **7440-32-6**, **Titanium**, uses 7440-44-0, Carbon, uses 11104-61-3, Cobalt oxide 11105-02-5, Silver vanadium oxide 11115-78-9, Copper sulfide 11126-12-8, Iron sulfide 12039-13-3, **Titanium** sulfide (TiS2) 12068-85-8, Iron sulfide fes2 12789-09-2, Copper vanadium oxide **13463-67-7**, **Titanium oxide**, uses 51311-17-2, Carbon fluoride 181183-66-4, Copper Silver vanadium oxide
(**oxidized titanium** as **cathodic current collector**)

IT 7782-42-5, Graphite, uses
(**oxidized titanium** as **cathodic current collector**)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 12597-68-1, Stainless steel, uses
(powder; **oxidized titanium** as **cathodic current collector**)

L45 ANSWER 3 OF 9 HCA COPYRIGHT 2006 ACS on STN

138:404345 **Battery** structures, self-organizing structures and related methods. Chiang, Yet Ming; Moorehead, William Douglas; Gozdz, Antoni S.; Holman, Richard K.; Loxley, Andrew; Riley, Gilbert N.; Viola, Michael S. (A123systems, Inc., USA). U.S. Pat. Appl. Publ. US 2003099884 A1 20030529, 70 pp., Cont.-in-part of U.S. Ser. No. 21,740. (English). CODEN: USXXCO. APPLICATION: US 2002-206662 20020726. PRIORITY: US 2001-308360P 20010727; US 2001-21740 20011022.

AB An energy storage device includes a first electrode comprising a first material and a second electrode comprising a second material, at least a portion of the first and second materials forming an interpenetrating network when dispersed in an electrolyte, the electrolyte, the first material and the second material are selected so that the first and second materials exert a repelling force on each other when combined. An electrochem. device, includes a first electrode in elec. communication with a first **current collector**; a second electrode in elec. communication with a second **current collector**; and an ionically

conductive medium in ionic contact with the first and second electrodes, wherein at least a portion of the first and second electrodes form an interpenetrating network and wherein at least one of the first and second electrodes comprises an electrode structure providing two or more pathways to its **current collector.**

IT **7440-32-6**, Titanium, uses
(LiFePO4 doped with; **battery** structures, self-organizing structures and related methods)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

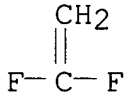
IT **13463-67-7**, **Titanium oxide**, uses
24937-79-9, Polyvinylidene fluoride
(**battery** structures, self-organizing structures and related methods)
RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O═Ti═O

RN 24937-79-9 HCA
CN Ethene, 1,1-difluoro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-38-7
CMF C2 H2 F2



IC ICM H01M004-64
ICS H01M004-80; H01M004-58
INCL 429233000; 429235000; 429231950; 429212000; 429231400; 429210000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** self organizing structure
IT **Battery** anodes
Battery cathodes
Coating process
Embossing
(**battery** structures, self-organizing structures and

related methods)
IT Fluoropolymers, uses
Glass, uses
Polyamines
Polyimides, uses
Polyoxyalkylenes, uses
(**battery** structures, self-organizing structures and related methods)
IT Polymers, uses
(block, Li salt-doped; **battery** structures, self-organizing structures and related methods)
IT Primary **batteries**
(lithium; **battery** structures, self-organizing structures and related methods)
IT Intercalation compounds
(lithium; **battery** structures, self-organizing structures and related methods)
IT Azines
Group VA element compounds
(phosphazines; **battery** structures, self-organizing structures and related methods)
IT 7439-95-4, Magnesium, uses
(CoLiO2 doped with; **battery** structures, self-organizing structures and related methods)
IT 7440-03-1, Niobium, uses 7440-25-7, Tantalum, uses **7440-32-6**, Titanium, uses 7440-33-7, Tungsten, uses 12042-37-4, AlLi
(LiFePO4 doped with; **battery** structures, self-organizing structures and related methods)
IT 7429-90-5, Aluminum, uses
(LiMnO2 doped with; **battery** structures, self-organizing structures and related methods)
IT 68-12-2, Dmf, uses 75-11-6, Diiodomethane 96-49-1, Ethylene carbonate 105-58-8, DiEthyl carbonate 108-32-7, Propylene carbonate 616-38-6, DimEthyl carbonate 627-31-6, 1,3-Diiodopropane 1307-96-6, Cobalt monoxide, uses 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide (NiO), uses 1314-62-1, Vanadia, uses 1317-34-6, Manganese oxide mn2o3 1317-35-7, Manganese oxide mn3o4 1335-25-7, Lead oxide 1343-98-2, Silicon hydroxide 1344-43-0, Manganese oxide mno, uses 1345-25-1, Iron oxide feo, uses 7226-23-5 7439-93-2, Lithium, uses 7439-93-2D, Lithium, intercalation compd. 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-42-8, Boron, uses 7440-44-0, Carbon, uses 7440-56-4, Germanium, uses 7440-66-6, Zinc, uses 7440-69-9, Bismuth, uses 7631-86-9, Silicon oxide, uses 7782-42-5, Graphite, uses 9003-53-6, Polystyrene 10043-35-3, Boric acid (H3BO3), uses 10361-43-0, Bismuth hydroxide

12002-78-7 12031-65-1, Lithium nickel oxide linio2 12037-30-8, Vanadium oxide v6o11 12048-27-0, Bili 12057-17-9, Lithium manganese oxide limn2o4 12057-22-6, LiZn 12057-30-6 12057-33-9 12063-07-9, Iron lithium oxide fe2lio4 12162-79-7, Lithium manganese oxide limno2 12190-79-3, Cobalt lithium oxide colio2 12253-44-0 12338-02-2 12651-23-9, Titanium hydroxide **13463-67-7**, **Titanium oxide**, uses 14475-63-9, Zirconium hydroxide Zr(OH)4 15365-14-7, Iron lithium phosphate felipo4 18282-10-5, Tin dioxide 21651-19-4, Tin oxide sno **24937-79-9**, Polyvinylidene fluoride 25014-41-9, Polyacrylonitrile 25322-68-3, Peo 25322-69-4, Polypropylene oxide 37217-08-6, Lithium **titanium oxide** liti2o4 39345-91-0, Lead hydroxide 53262-48-9 . 55575-96-7, Lithium silicide Li13Si4 55608-41-8 56627-44-2 61812-08-6, Lithium silicide Li21Si8 66403-10-9, Lithium boride Li5B4 67070-82-0 71012-86-7, Lithium boride Li7B6 74083-26-4 76036-33-4, Lithium silicide Li12Si7 106494-93-3, Lithium silicide Li21Si5 114778-10-8, Iron lithium sulfate Fe2Li2(SO4)3 144419-56-7, Cobalt lithium magnesium oxide Co0.95LiMg0.05O2 496816-56-9 496816-58-1, Iron lithium zirconium phosphate Fe0.98LiZr0.02(PO4) 531493-25-1, Iron lithium titanium phosphate (Fe0.98LiTi0.02(PO4))
(**battery** structures, self-organizing structures and related methods)

IT 99742-70-8, Poly(o-methoxyaniline) 104934-51-2, Poly(3-octylthiophene)
(**battery** structures, self-organizing structures and related methods)

IT 1303-86-2, Boron oxide (B2O3), uses 1304-76-3, Bismuth oxide (Bi2O3), uses 1314-23-4, Zirconium oxide, uses 1314-56-3, Phosphorus oxide (P2O5), uses 1317-36-8, Lead oxide (PbO), uses 7447-41-8, Lithium chloride, uses 7789-24-4, Lithium fluoride, uses 10377-51-2, Lithium iodide 12057-24-8, Lithia, uses
(glass; **battery** structures, self-organizing structures and related methods)

L45 ANSWER 4 OF 9 HCA COPYRIGHT 2006 ACS on STN

138:156304 **Battery** structures, self-organizing structures, and related methods. Chiang, Yet-Ming; Moorehead, William Douglas; Holman, Richard K.; Viola, Michael S.; Gozdz, Antoni S.; Loxley, Andrew; Riley, Gilbert N., Jr. (Massachusetts Institute of Technology, USA; A123 Systems). PCT Int. Appl. WO 2003012908 A2 20030213, 138 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW; RW: AT, BE, BF,

BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2002-US23880 20020726. PRIORITY: US 2001-308360P 20010727; US 2001-21740 20011022.

AB An energy storage device includes a first electrode comprising a first material and a second electrode comprising a second material, at least a portion of the first and second materials forming an interpenetrating network when dispersed in an electrolyte, the electrolyte, the first material and the second material are selected so that the first and second materials exert a repelling force on each other when combined. An electrochem. device, includes a first electrode in elec. communication with a first **current collector**; a second electrode in elec. communication with a second **current collector**; and an ionically conductive medium in ionic contact with the first and second electrodes, wherein at least a portion of the first and second electrodes form an interpenetrating network and wherein at least one of the first and second electrodes comprises an electrode structure providing two or more pathways to its **current collector**.

IT **7440-32-6**, Titanium, uses
(FeLiPO4 doped with; **battery** structures, self-organizing structures, and related methods)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

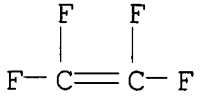
IT **9002-84-0**, Ptfe **13463-67-7**, **Titanium oxide**, uses **24937-79-9**, Polyvinylidene fluoride
(**battery** structures, self-organizing structures, and related methods)

RN 9002-84-0 HCA

CN Ethene, tetrafluoro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 116-14-3
CMF C2 F4



RN 13463-67-7 HCA

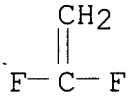
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O═Ti═O

RN 24937-79-9 HCA
CN Ethene, 1,1-difluoro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 75-38-7
CMF C2 H2 F2



IC ICM H01M010-04
ICS H01M010-40; H01M004-04; H01M004-02; H01B009-00; G02F001-00
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 72
ST **battery** structure self organizing structure
IT Phosphazenes
((methoxyethoxy)ethoxy; **battery** structures, self-organizing structures, and related methods)
IT **Battery** anodes
Battery cathodes
Conducting polymers
Embossing
Encapsulants
Ink-jet printing
Lithography
Polymer electrolytes
Primary **batteries**
Screen printing
(**battery** structures, self-organizing structures, and related methods)
IT Fluoropolymers, uses
Polyamines
Polyimides, uses
Polyoxyalkylenes, uses
(**battery** structures, self-organizing structures, and related methods)
IT Polyesters, uses
(**battery** structures, self-organizing structures, and related methods)
IT Polyesters, uses
(**battery** structures, self-organizing structures, and

related methods)
IT Glass, uses
(bismuth lithium borate; **battery** structures, self-organizing structures, and related methods)
IT Polymers, uses
(block, lithium salt-doped, electrolyte; **battery** structures, self-organizing structures, and related methods)
IT Electric apparatus
(electrochem.; **battery** structures, self-organizing structures, and related methods)
IT Polyoxyalkylenes, uses
(lithium complexes, perchlorate- or triflate-contg.; **battery** structures, self-organizing structures, and related methods)
IT Secondary **batteries**
(lithium; **battery** structures, self-organizing structures, and related methods)
IT Composites
(nanocomposite; **battery** structures, self-organizing structures, and related methods)
IT Printing (nonimpact)
(stenciling; **battery** structures, self-organizing structures, and related methods)
IT Molding
(tape-casting; **battery** structures, self-organizing structures, and related methods)
IT Coating process
(web; **battery** structures, self-organizing structures, and related methods)
IT 7439-95-4, Magnesium, uses
(CoLiO2 doped with; **battery** structures, self-organizing structures, and related methods)
IT 7440-03-1, Niobium, uses 7440-25-7, Tantalum, uses **7440-32-6**, Titanium, uses 7440-33-7, Tungsten, uses
(FeLiPO4 doped with; **battery** structures, self-organizing structures, and related methods)
IT 7429-90-5, Aluminum, uses
(LiMnO2 doped with; **battery** structures, self-organizing structures, and related methods)
IT 68-12-2, n,n-Dimethylformamide, uses 75-11-6, Diiodomethane 96-49-1, Ethylene carbonate 105-58-8, DiEthyl carbonate 108-32-7, Propylene carbonate 616-38-6, DimEthyl carbonate 627-31-6, 1,3-Diiodopropane 1307-96-6, Cobalt oxide coo, uses 1313-13-9, Manganese oxide mno2, uses 1313-99-1, Nickel oxide nio, uses 1314-23-4, Zirconium oxide, uses 1314-62-1, Vanadia, uses 1317-34-6, Manganese oxide mn2o3 1317-35-7, Manganese oxide mn3o4 1335-25-7, Lead oxide 1344-43-0, Manganese oxidemno, uses 1345-25-1, Iron oxide feo, uses 7226-23-5 7439-93-2, Lithium,

uses 7439-93-2D, Lithium, intercalation compd. 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-42-8, Boron, uses 7440-44-0, Carbon, uses 7440-56-4, Germanium, uses 7440-66-6, Zinc, uses 7440-69-9, Bismuth, uses 7782-42-5, Graphite, uses **9002-84-0**, Ptfe 9003-53-6, Polystyrene 10361-43-0, Bismuth hydroxide 12002-78-7 12031-65-1, Lithium nickel oxide linio2 12037-30-8, Vanadium oxide v6o11 12042-37-4, Alli 12048-27-0, Bili 12057-17-9, Lithium manganese oxide limn2o4 12057-22-6, Lizn 12057-30-6 12057-33-9 12063-07-9, Iron lithium oxide fe2lio4 12162-79-7, Lithium manganese oxide limno2 12190-79-3, Cobalt lithium oxide colio2 12253-44-0 12338-02-2 12651-23-9, Titanium hydroxide **13463-67-7**, **Titanium oxide**, uses 14475-63-9, Zirconium hydroxide 15365-14-7, Iron lithium phosphate felipo4 18282-10-5, Tin dioxide 21324-40-3, Lithium hexafluorophosphate 21651-19-4, Tin oxide sno **24937-79-9**, Polyvinylidene fluoride 25014-41-9, Polyacrylonitrile 25322-68-3, Peo 25322-69-4, Polypropylene oxide 37217-08-6, Lithium **titanium oxide** liti2o4 39345-91-0, Lead hydroxide 50851-57-5 53262-48-9 53640-36-1 55575-96-7, Lithium silicide Li13Si4 55608-41-8 56627-44-2 61812-08-6, Lithium silicide Li21Si8 66403-10-9, Lithium boride (Li5B4) 67070-82-0 71012-86-7, Lithium boride (Li7B6) 74083-26-4 76036-33-4, Lithium silicide Li12Si7 106494-93-3, Lithium silicide Li21Si5 126213-51-2, Poly(3,4-ethylenedioxythiophene) 136511-06-3, MEEP 144419-56-7, Cobalt lithium magnesium oxide Co0.95LiMg0.05O2 496816-56-9 496816-57-0, Cobalt lithium magnesium oxide (Co0.95Li0.95Mg0.05O1.9) 496816-58-1, Iron lithium zirconium phosphate (Fe0.98LiZr0.02(PO4))
(**battery** structures, self-organizing structures, and related methods)

IT 76-05-1, Trifluoroacetic acid, uses 104-15-4, Toluene sulfonic acid, uses 7647-01-0, Hydrochloric acid, uses 57534-41-5, Zonyl FSN
(**battery** structures, self-organizing structures, and related methods)

IT 9002-88-4, Polyethylene 11099-11-9, Vanadium oxide 25038-59-9, Mylar, uses
(**battery** structures, self-organizing structures, and related methods)

IT 99742-70-8, Poly(o-methoxyaniline) 104934-51-2, Poly(3-octylthiophene)
(coating; **battery** structures, self-organizing structures, and related methods)

IT 7440-50-8, Copper, uses
(**current collector; battery** structures, self-organizing structures, and related methods)

IT 7791-03-9, Lithium perchlorate 33454-82-9, Lithium triflate

(electrolyte, cog. polyethylene oxide; **battery** structures, self-organizing structures, and related methods)

IT 1303-86-2, Boron oxide b2o3, uses 1304-76-3, Bismuth oxide bi2o3, uses 1314-56-3, Phosphorus pentoxide, uses 1317-36-8, Lead oxide pbo, uses 7447-41-8, Lithium chloride, uses 7631-86-9, Silica, uses 7789-24-4, Lithium fluoride, uses 10377-51-2, Lithium iodide 12057-24-8, Lithia, uses
(glass; **battery** structures, self-organizing structures, and related methods)

IT 7439-93-2D, Lithium, polyethylene oxide complexes 25322-68-3D, Peo, lithium complexes
(perchlorate- or triflate-contg.; **battery** structures, self-organizing structures, and related methods)

L45 ANSWER 5 OF 9 HCA COPYRIGHT 2006 ACS on STN

137:127519 Multilayer-structured solid oxide fuel **cells** contg. solid **electrolyte** layer, **air** electrode, and metal or lanthanum mixed oxide perovskite electrode. Shibata, Itaru; Sugiyama, Tatsuo; Hatano, Masaharu; Yamanaka, Mitsugu; Uchiyama, Makoto; Fukuzawa, Tatsuhiro; Hara, Naoki; Kushibiki, Keiko; Satou, Fuminori (Nissan Motor Co., Ltd., Japan). Eur. Pat. Appl. EP 1225648 A2 20020724, 20 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2002-884 20020115. PRIORITY: JP 2001-9394 20010117; JP 2001-144550 20010515.

AB A single cell for a solid oxide fuel cell contains a multilayered structure that includes a solid electrolyte layer, an **air** electrode and a fuel electrode located on the other surface of the solid electrolyte layer. The **air** electrode includes an adhering cathode layer formed on one surface of the solid electrolyte layer and configured to allow the **air** electrode and the solid electrolyte layer to adhere elec. and mech. to each other. An electricity **collecting cathode** layer is formed on the adhering cathode layer and is configured to collect electricity from the **air** electrode. The adhering cathode layer has a structure denser than the electricity **collecting cathode** layer, and is configured into a three-phase interface composed of a solid electrolyte layer, a reactive gas, and the electrode, or a two-phase interface composed of the solid electrode layer and the **air** electrode. The electricity **collecting cathode** layer is thicker than the adhering cathode layer, and has pores that provide access of the reactive gas to the three-phase interface or the two-phase interface. The electricity **collecting cathode** layer is composed of transition metals or a perovskite-type lanthanum mixed oxide.

IT **7440-32-6**, Titanium, uses

(fuel cell cathode; multilayer-structured solid oxide fuel **cells** contg. solid **electrolyte** layer, **air** electrode, and metal or lanthanum mixed oxide perovskite electrode)

RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-86
ICS H01M008-12
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST solid oxide fuel cell multilayer coating; **air** electrode solid oxide fuel cell; lanthanum mixed oxide perovskite fuel cell cathode
IT Vapor deposition process
(chem., multilayer fabrication by; multilayer-structured solid oxide fuel **cells** contg. solid **electrolyte** layer, **air** electrode, and metal or lanthanum mixed oxide perovskite electrode)
IT **Air**
(fuel cell electrode; multilayer-structured solid oxide fuel **cells** contg. solid **electrolyte** layer, **air** electrode, and metal or lanthanum mixed oxide perovskite electrode)
IT Fuel cell anodes
Fuel cell cathodes
Fuel cell electrodes
Fuel cells
(multilayer-structured solid oxide fuel **cells** contg. solid **electrolyte** layer, **air** electrode, and metal or lanthanum mixed oxide perovskite electrode)
IT Vapor deposition process
(phys., multilayer fabrication by; multilayer-structured solid oxide fuel **cells** contg. solid **electrolyte** layer, **air** electrode, and metal or lanthanum mixed oxide perovskite electrode)
IT 1313-99-1, Nickel oxide (NiO), uses 7440-02-0, Nickel, uses 12649-91-1
(fuel cell anode; multilayer-structured solid oxide fuel **cells** contg. solid **electrolyte** layer, **air** electrode, and metal or lanthanum mixed oxide perovskite electrode)
IT 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-96-5, Manganese, uses 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-24-6, Strontium, uses **7440-32-6**, Titanium, uses 7440-33-7, Tungsten, uses 7440-47-3, Chromium, uses

7440-48-4, Cobalt, uses 7440-57-5, Gold, uses
(fuel cell cathode; multilayer-structured solid oxide fuel **cells** contg. solid **electrolyte** layer, **air** electrode, and metal or lanthanum mixed oxide perovskite electrode)

IT 106390-66-3, Lanthanum manganese strontium oxide (La0.7MnSr0.3O3)
107121-70-0, Chromium lanthanum strontium oxide (CrLa0.7Sr0.3O3)
107121-72-2, Iron lanthanum strontium oxide (FeLa0.7Sr0.3O3)
443891-04-1, Cobalt lanthanum oxide (Co0.7La0.3O3)
(perovskite, fuel cell cathode; multilayer-structured solid oxide fuel **cells** contg. solid **electrolyte** layer, **air** electrode, and metal or lanthanum mixed oxide perovskite electrode)

IT 1314-23-4, Zirconia, uses
(yttria-stabilized, solid electrolyte; multilayer-structured solid oxide fuel **cells** contg. solid **electrolyte** layer, **air** electrode, and metal or lanthanum mixed oxide perovskite electrode)

IT 1314-36-9, Yttria, uses
(zirconia stabilized with, solid electrolyte; multilayer-structured solid oxide fuel **cells** contg. solid **electrolyte** layer, **air** electrode, and metal or lanthanum mixed oxide perovskite electrode)

L45 ANSWER 6 OF 9 HCA COPYRIGHT 2006 ACS on STN
135:35209 Cathodes for alkaline zinc-**air batteries**.
Sun, Fajiong; Wang, Fang (Peop. Rep. China). U.S. US 6248476 B1 **20010619**, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1999-344388 19990625. PRIORITY: CN 1999-235604 19990318.

AB A novel **air** cathode and the metal **air** cells made therewith are provided. With a conductive **air** diffusion layer of carbon black and polymeric materials, the current collecting substrate is disposed on one side of the **air** diffusion layer while the active layer is on the other side of the **air** diffusion layer. The current collecting substrate is in good contact with both the **air** diffusion layer and the cathode can of the cell, and it has absolutely no direct contact with the active layer. The performance of cells made therewith are significantly improved in high drain discharge situations and the internal impedance of the cells is reduced.

IT **7440-32-6, Titanium**, uses
(current **collector**; **cathodes** for alk. zinc-**air batteries**)

RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-50
INCL 429224000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST zinc **air battery** cathode
IT Primary **batteries**
(button-type; cathodes for alk. zinc-**air batteries**)
IT **Battery** cathodes
(cathodes for alk. zinc-**air batteries**)
IT Carbon black, uses
Polyamides, uses
(cathodes for alk. zinc-**air batteries**)
IT Fluoropolymers, uses
(cathodes for alk. zinc-**air batteries**)
IT 7440-44-0, Activated carbon, uses
(activated; cathodes for alk. zinc-**air batteries**)
IT 1310-58-3, Potassium hydroxide, uses 1313-13-9, Manganese dioxide, uses 7440-66-6, Zinc, uses
(cathodes for alk. zinc-**air batteries**)
IT 1314-13-2, Zinc oxide, uses 9002-88-4, Polyethylene 9003-07-0, Polypropylene 9004-32-4, Cmc
(cathodes for alk. zinc-**air batteries**)
IT 9002-84-0, Ptfe
(cathodes for alk. zinc-**air batteries**)
IT 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-22-4, Silver, uses **7440-32-6**, **Titanium**, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-74-6, Indium, uses 12597-68-1, stainless steel, uses 12597-69-2, steel, uses
(current **collector**; **cathodes** for alk. zinc-**air batteries**)

L45 ANSWER 7 OF 9 HCA COPYRIGHT 2006 ACS on STN
127:360960 **Cathode collectors** for lead acid **batteries**, their manufacture, and the cathodes. Takahashi, Katsuhiro; Hatanaka, Takeshi; Nitta, Yoshiaki (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 09283151 A2 **19971031** Heisei, 4 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1996-96499 19960418.
AB The Pb or Pb alloy based collectors have an **anodized** surface layer and a potential between those of Pb and PbO2 when immersed in dil. H2SO4 and are prepd. by **anodizing** in a dil. H2SO4 contg. Ba, Sr, Bi, Sn, Ti, Ge, and/or Se ions at a potential higher than PbO2. The **anodized** collectors may further be treated by exposing to an O contg. atm. The

cathodes use the **anodized collectors**. These cathodes have high overcharge tolerance and render **batteries** long cycle life.

IT **7440-32-6**, Titanium, uses
(ions; **anodization** of lead alloy collectors in metal ion contg. dil. sulfuric acid soln. for cathodes in lead acid **batteries**)

RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-68
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lead **battery cathode anodized collector**; oxygen treatment **anodized** lead **cathode collector**

IT **Anodization**
Battery cathodes
(**anodization** of lead alloy collectors in metal ion contg. dil. sulfuric acid soln. for cathodes in lead acid **batteries**)

IT 62304-24-9
(**anodization** of lead alloy collectors in metal ion contg. dil. sulfuric acid soln. for cathodes in lead acid **batteries**)

IT 7664-93-9, Sulfuric acid, uses 7782-49-2D, Selenium, ions, uses 17341-24-1, uses 17341-25-2, uses 22537-39-9, Strontium ion (Sr2+), uses 22541-12-4, Barium ion (Ba2+), uses 24203-36-9, Potassium ion (K+), uses
(**anodization** of lead alloy collectors in metal ion contg. dil. sulfuric acid soln. for cathodes in lead acid **batteries**)

IT 7440-31-5, Tin, uses **7440-32-6**, Titanium, uses 7440-56-4, Germanium, uses 7440-69-9, Bismuth, uses
(ions; **anodization** of lead alloy collectors in metal ion contg. dil. sulfuric acid soln. for cathodes in lead acid **batteries**)

IT 7782-44-7, Oxygen, uses
(treatment of **anodized** lead alloy collectors in oxygen contg. atm. for cathodes in lead acid **batteries**)

L45 ANSWER 8 OF 9 HCA COPYRIGHT 2006 ACS on STN
122:218560 High performance lithium or zinc secondary **batteries** with film-coated anodes. Kawakami, Soichiro; Mishina, Shinya; Kobayashi, Naoya (Canon K. K., Japan). Eur. Pat. Appl. EP 600718 A2 **19940608**, 88 pp. DESIGNATED STATES: R: CH, DE, FR, GB, IT,

LI. (English). CODEN: EPXXDW. APPLICATION: EP 1993-309571 19931130. PRIORITY: JP 1992-320559 19921130; JP 1992-320557 19921130; JP 1992-320558 19921130; JP 1992-320560 19921130; JP 1992-344563 19921224; JP 1993-78342 19930405.

AB The secondary **battery** with long cycle life has a Li or Zn anode activating material, electrolytic soln., a separator, **cathode** activating material, a **collecting** electrode and a **battery** case, where the surface of the anode is covered with a film having a structure which allows ions relating to the **battery** reactions to pass through. Since growth of dendrite of Li or Zn at the time of the charge can be prevented, short circuit between the anode and cathode can be prevented. A Li **battery**, Ni-Zn **battery**, **air**-Zn **battery**, Br-Zn **battery** and AgO-Zn **battery** are described.

IT **7440-32-6**, Titanium, uses
(conductive layer; high performance lithium or zinc secondary **batteries** with film-coated anodes)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M010-40
ICS H01M010-24; H01M004-24; H01M004-02; H01M002-14; H01M004-36

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST secondary **battery** high performance; lithium secondary **battery** high performance; zinc secondary **battery** high performance; anode film high performance **battery**

IT **Batteries**, secondary
(Li, Ni-Zn, **air**-Zn, Br-Zn, AgO-Zn; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Porphyrins
(cathode insulating film; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Fluoropolymers
Siloxanes and Silicones, uses
(cathode; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Carbon fibers, uses
(conductive layer; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Carbides
Fluorides, uses
Halides
Nitrides

(electrodes; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Aromatic hydrocarbons, uses
(insulating film, polymers; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Cryptands
(insulating film; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Glass, oxide
(insulating layer; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Polyamines
Polyethers, uses
Sulfides, uses
(ring, insulating film; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Thiols, uses
(crown ether, insulating film; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Crown compounds
(cryptands, insulating film; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Crown compounds
(ether imines, insulating film; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Crown compounds
(ethers, thiol, insulating film; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Crown compounds
(imines, insulating film; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Polyethers, uses
(thio-, ring, insulating film; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT Lithium alloy, base
Zinc alloy, base
(anode; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT 28406-56-6, Poly(2-vinylnaphthalene) 29659-51-6, Poly(9-Vinylanthracene)
(anode film; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT 1314-13-2, Zinc oxide, uses 7439-93-2, Lithium, uses 7440-66-6, Zinc, uses 25038-71-5, Ethylene-tetrafluoroethylene copolymer 25791-89-3 26702-40-9 27120-35-0 28212-48-8, Polydiphenoxyphosphazene 28212-50-2, Polybis(trifluoroethoxy)phosphazene 37626-13-4 94667-38-6 111093-02-8, Tirano coat 153315-80-1 162036-42-2 162036-43-3 162036-44-4 162036-45-5

162036-46-6 162036-49-9
(anode; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT 50-32-8D, Benzopyrene, polymers 85-01-8D, Phenanthrene, polymers 91-20-3D, Naphthalene, polymers 92-24-0D, Naphthacene, polymers 120-12-7D, Anthracene, polymers 129-00-0D, Pyrene, polymers 190-26-1D, Ovalene, polymers 191-07-1D, Coronene, polymers 213-46-7D, Picene, polymers 217-59-4D, Triphenylene, polymers 539-52-6D, Perillene, polymers 574-93-6, Phthalocyanine 1335-25-7, Lead oxide 12619-70-4, Cyclodextrin
(cathode insulating film; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT 1314-62-1, Vanadium oxide (V2O5), uses 7429-90-5, Aluminum, uses 7439-92-1, Lead, uses 7439-95-4, Magnesium, uses 7440-09-7, Potassium, uses 7440-23-5, Sodium, uses 7440-31-5, Tin, uses 7440-36-0, Antimony, uses 7440-38-2, Arsenic, uses 7440-39-3, Barium, uses 7440-42-8, Boron, uses 7440-69-9, Bismuth, uses 7440-70-2, Calcium, uses 7440-74-6, Indium, uses 7723-14-0, Phosphorus, uses 9002-88-4 9003-07-0, Polypropene 12054-48-7, Nickel hydroxide 12209-58-4, Molybdenum vanadium oxide 39300-70-4, Lithium nickel oxide 39457-42-6, Lithium manganese oxide 120479-28-9, Cobalt copper lithium oxide 131344-56-4, Cobalt Lithium nickel oxide 152654-50-7, Cobalt iron lithium oxide
(cathode; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT 7440-02-0, Nickel, uses 7440-06-4, Platinum, uses 7440-21-3, Silicon, uses **7440-32-6**, Titanium, uses 7440-44-0, Carbon, uses
(conductive layer; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT 12673-92-6, Titanium sulfide 25498-03-7 162036-47-7 162036-48-8 162036-50-2
(high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT 75-73-0, Carbon tetrafluoride 1333-74-0, Hydrogen, uses 7440-37-1, Argon, uses 7440-59-7, Helium, uses 7440-63-3, Xenon, uses 7647-01-0, Hydrochloric acid, uses 7664-39-3, Hydrofluoric acid, uses 7664-41-7, Ammonia, uses 7727-37-9, Nitrogen, uses 7782-41-4, Fluorine, uses 7782-44-7, Oxygen, uses 7782-50-5, Chlorine, uses 7783-54-2, Nitrogen trifluoride
(plasma anode treatment agent; high performance lithium or zinc secondary **batteries** with film-coated anodes)

IT 1305-78-8, Calcium oxide, uses 1309-48-4, Magnesium oxide (MgO), uses 1310-53-8, Germanium oxide, uses 1312-43-2, Indium oxide 1314-23-4, Zirconia, uses 1332-29-2, Tin oxide 1344-28-1, Alumina, uses 7631-86-9, Silica, uses 11118-57-3, Chrome oxide 12640-89-0, Selenium oxide 13463-67-7, Titania, uses
(separator; high performance lithium or zinc secondary

batteries with film-coated anodes)

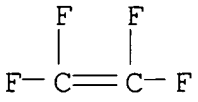
L45 ANSWER 9 OF 9 HCA COPYRIGHT 2006 ACS on STN
94:111611 Brine electrolysis using fixed bed oxygen depolarized cathode chlor-alkali cell. Johnson, Harlan B.; Chamberlin, Ronald D. (PPG Industries, Inc., USA). U.S. US 4244793 **19810113**, 8 pp. (English). CODEN: USXXAM. APPLICATION: US 1979-82841 19791009.
AB In this method, use is made of a cathode bed having a HO2- disproportionation catalyst. The cathode was made of coated, immobilized, porous, C particles placed in a stainless steel **current collector**. The anode was a 5 + 7 in. section of louvered Ti mesh coated with RuO2-**TiO2**. The asbestos diaphragm was reinforced with HALAR poly(ethylene-chlorotrifluoroethylene). The catalyst particles were prepd. by 1st impregnation with Ag2CO3 and NH4OH then heating for 1 h at 350°. After cooling, the particles were rendered hydrophobic by impregnating with a Teflon dispersion. The electrolysis was carried out at 50 A/ft2 and in 176% excess O.
IT **7440-32-6**, uses and miscellaneous
(anodes, for brine electrolysis, coated with ruthenium dioxide and **titanium dioxide**)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IT **9002-84-0**
(asbestos diaphragms reinforced with, for brine electrolysis)
RN 9002-84-0 HCA
CN Ethene, tetrafluoro-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 116-14-3
CMF C2 F4



IT **13463-67-7**, uses and miscellaneous
(titanium anodes coated with, for brine electrolysis)
RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

IC C25B001-34
INCL 204098000
CC 72-10 (Electrochemistry)
Section cross-reference(s): 49
IT **Electrolytic cells**
(for brine **electrolysis**, with fixed-bed and oxygen-depolarized cathode)
IT **7440-32-6**, uses and miscellaneous
(anodes, for brine electrolysis, coated with ruthenium dioxide and **titanium dioxide**)
IT **9002-84-0** 25101-45-5
(asbestos diaphragms reinforced with, for brine electrolysis)
IT 12036-10-1 **13463-67-7**, uses and miscellaneous
(titanium anodes coated with, for brine electrolysis)

=>D L46 1-17 CBIB ABS HITSTR HITIND

L46 ANSWER 1 OF 17 HCA COPYRIGHT 2006 ACS on STN
138:388239 In situ thermal polymerization method for making gel polymer lithium ion rechargeable **electrochemical cells**.
Xing, Weibing; Takeuchi, Esther S. (USA). U.S. Pat. Appl. Publ. US 2003104282 A1 20030605, 9 pp. (English). CODEN: USXXCO.
APPLICATION: US 2001-883 20011115.
AB A single step, in situ curing method for making gel polymer lithium ion rechargeable cells and **batteries** is disclosed. This method used a precursor soln. consisting of monomers with multiple functionalities such as multiple acryloyl functionalities, a free-radical generating activator, nonaq. solvents such as ethylene carbonate and propylene carbonate, and a lithium salt such as LiPF6. The electrodes are prepd. by slurry-coating a carbonaceous material such as graphite onto an anode current collector and a lithium transition metal oxide such as LiCoO2 onto a **cathode** current **collector**, resp. The electrodes, together with a highly porous separator, are then soaked with the polymer electrolyte precursor soln. and sealed in a cell package under vacuum. The whole cell package is heated to in situ cure the polymer electrolyte precursor. The resulting lithium ion rechargeable cells with gelled polymer electrolyte demonstrate excellent electrochem. properties such as high efficiency in material utilization, high Coulombic efficiency, good rate capability, and good cyclability.
IT **7440-32-6**, Titanium, uses
(anode current collector; in-situ thermal polymn. method for

making gel polymer lithium ion rechargeable **electrochem**
. **cells**)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IT **13463-67-7, Titanium oxide**, uses
(in-situ thermal polymn. method for making gel polymer lithium ion rechargeable **electrochem. cells**)
RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

IC ICM H01M010-40
ICS H01M004-58; H01M004-66
INCL 429303000; 429189000; 429231800; 429245000; 429231100; 029623100
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38
ST lithium **battery** gel polymer electrolyte in situ thermal polymn
IT **Battery** electrolytes
(in-situ thermal polymn. method for making gel polymer lithium ion rechargeable **electrochem. cells**)
IT Carbon black, uses
Coke
(in-situ thermal polymn. method for making gel polymer lithium ion rechargeable **electrochem. cells**)
IT Secondary **batteries**
(lithium; in-situ thermal polymn. method for making gel polymer lithium ion rechargeable **electrochem. cells**)
IT Polymerization
(thermal; in-situ thermal polymn. method for making gel polymer lithium ion rechargeable **electrochem. cells**)
IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses **7440-32-6**, Titanium, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 11101-13-6 12597-68-1, Stainless steel, uses
(anode current collector; in-situ thermal polymn. method for making gel polymer lithium ion rechargeable **electrochem**
. **cells**)
IT 7440-44-0, Carbon, uses
(glassy; in-situ thermal polymn. method for making gel polymer lithium ion rechargeable **electrochem. cells**)
IT 94-36-0, Benzoyl peroxide, processes 105-74-8, Lauroyl peroxide

2094-98-6, 1,1'-Azobis(cyclohexanecarbonitrile) 2638-94-0, 4,4'-Azobis(4-cyanovaleric acid) 3006-86-8, 1,1-Bis(tert-butylperoxy)cyclohexane 15667-10-4, 1,1-Bis(tert-amylperoxy)cyclohexane
(in-situ thermal polymn. method for making gel polymer lithium ion rechargeable **electrochem. cells**)

IT 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 556-65-0, Lithium thiocyanate 685-91-6, n,n-Diethylacetamide 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide nio, uses 1314-62-1, Vanadia, uses 1317-37-9, Iron sulfide Fes 1332-37-2, Iron oxide, uses 1344-70-3, Copper oxide 2923-17-3 4437-85-8, Butylene carbonate 7782-42-5, Graphite, uses 7784-01-2, Silver chromate 7789-19-7, Copperfluoride cuf2 7791-03-9, Lithium perchlorate 11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide 11104-61-3, Cobalt oxide 11105-02-5, Silver vanadium oxide 11113-75-0, Nickel sulfide 11115-76-7, Cobalt selenide 11115-77-8, Cobalt telluride 11115-78-9, Copper sulfide 11115-99-4, Nickel selenide 11116-00-0, Nickel telluride 11118-57-3, Chromium oxide 11126-12-8, Iron sulfide 11129-60-5, Manganese oxide 11130-24-8, Vanadium sulfide 12031-65-1, Lithium nickel oxide LiNiO2 12039-13-3, Titanium sulfide (TiS2) 12057-17-9, Lithium manganese oxide LiMn2O4 12057-24-8, Lithia, uses 12068-85-8, Iron sulfide Fes2 12162-79-7, Lithium manganese oxide LiMnO2 12162-92-4, Lithium vanadium oxide LiV2O5 12190-79-3, Cobalt lithium oxide CoLiO2 12612-50-9, Molybdenum sulfide 12623-97-1, Chromium sulfide 12627-00-8, Niobium oxide 12653-56-4, Cobalt sulfide 12673-92-6, Titanium sulfide 12687-82-0, Manganese sulfide 12789-09-2, Copper vanadium oxide 12795-09-4, Copper telluride 13453-75-3 **13463-67-7, Titanium oxide,** uses 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 20667-12-3, Silver oxide ag2o 21324-40-3, Lithium hexafluorophosphate 22205-45-4, Copper sulfide cu2s 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 37320-90-4, Manganese selenide 37359-15-2, Copper selenide 39290-91-0, Niobium sulfide 39361-71-2, Titanium telluride 50808-87-2, Molybdenum telluride 50814-22-7, Chromium telluride 50926-12-0, Iron selenide 50926-13-1, Iron telluride 51311-17-2, Carbon fluoride 54183-54-9, Molybdenum selenide 54427-25-7, Vanadium telluride 58319-81-6, Manganese telluride 64176-75-6, Niobium selenide 66675-50-1, Titanium selenide 66675-60-3, Chromium selenide 90076-65-6 115028-88-1 131344-56-4, Cobalt lithium nickel oxide 132404-42-3 135751-98-3, Vanadium selenide 155645-82-2, Silver oxide ag2o2 162124-03-0, Niobium telluride 181183-66-4, Copper Silver vanadium oxide 188029-35-8, Lithium

titanium oxide Li4-7Ti5O12 423734-10-5, Cobalt lithium nitride Co0.1-0.6Li2.4-2.9N 423734-14-9, Lithium nickel nitride Li2.4-2.9Ni0.1-0.6N 527698-30-2, Copper lithium tin oxide (Cu0.92LiSn0.08O2)
(in-situ thermal polymn. method for making gel polymer lithium ion rechargeable **electrochem. cells**)

IT 26426-04-0P, Trimethylolpropane trimethacrylate homopolymer 57592-66-2P, Pentaerythritol tetraacrylate homopolymer 57592-67-3P, Hexanediol diacrylate homopolymer 64401-02-1P, Bisphenol A-ethylene oxide adduct diacrylate 67653-78-5P, Dipentaerythritol hexaacrylate homopolymer 82200-28-0P, Dipentaerythritol pentaacrylate homopolymer 85887-85-0P, Ethoxylated trimethylolpropane triacrylate homopolymer 103315-68-0P, Di(trimethylolpropane)tetraacrylate homopolymer 117223-60-6P
(in-situ thermal polymn. method for making gel polymer lithium ion rechargeable **electrochem. cells**)

L46 ANSWER 2 OF 17 HCA COPYRIGHT 2006 ACS on STN
138:257937 Secondary nonaqueous-electrolyte **battery** with **cathode collector** containing tantalum or niobium.
Tachibana, Kazuhiro; Ogata, Takeaki; Nishina, Tatsuo; Endo, Takashi; Sakamoto, Yusuke; Matsuhashi, Daisuke; Nirasawa, Yuji; Suzuki, Yuichi (Japan Science and Technology Corporation, Japan). Jpn. Kokai Tokkyo Koho JP 2003100300 A2 20030404, 8 pp. (Japanese).
CODEN: JKXXAF. APPLICATION: JP 2001-286665 20010920.

AB The claimed **battery**, using a cathode contg. a Li mixed oxide and an electrolyte soln. contg. Li halogen oxo acid salt, is equipped with a **cathode collector** contg. Ta or Nb. The **cathode collector** provides high corrosion resistance.

IC ICM H01M004-66
ICS H01M004-02; H01M004-58; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST tantalum niobium **cathode collector** nonaq **battery** halo oxo acid

IT **Battery cathodes**
(**cathode collector** contg. tantalum or niobium for nonaq. **battery** using lithium halogen oxo acid salt)

IT Secondary **batteries**
(lithium; **cathode collector** contg. tantalum or niobium for nonaq. **battery** using lithium halogen oxo acid salt)

IT 7440-03-1, Niobium, uses 7440-25-7, Tantalum, uses 7791-03-9, Lithium perchlorate
(**cathode collector** contg. tantalum or niobium for nonaq. **battery** using lithium halogen oxo acid salt)

IT 12017-96-8, Chromium lithium oxide (CrLiO2) 12031-65-1, Lithium

nickel oxide (LiNiO2) 12057-17-9, Lithium manganese oxide (LiMn2O4) 12057-19-1, Lithium **titanium oxide** (LiTiO2) 12162-87-7, Lithium vanadium oxide (LiVO2) 12162-91-3, Lithium vanadium oxide (LiV2O4) 12169-03-8, Lithium yttrium oxide (LiYO2) 12190-79-3, Cobalt lithium oxide (CoLiO2) 12209-15-3, Lithium scandium oxide (LiScO2)
(**cathode**; **cathode collector** contg. tantalum or niobium for nonaq. **battery** using lithium halogen oxo acid salt)

L46 ANSWER 3 OF 17 HCA COPYRIGHT 2006 ACS on STN
138:173233 Electrochemical characteristics of LiNixMn2-x (x = 0.5, 0.4) cathode in 5-V region - Effects of current collector and particle size. Kanamura, Kiyoshi; Umegaki, Takao; Katada, Motomi (Tokyo Metropolitan University, Japan). Memoirs of Graduate School of Engineering, Tokyo Metropolitan University, 51, 1-17 (English) **2001**. CODEN: MGMUFT. ISSN: 1343-8743. Publisher: Tokyo Metropolitan University, Graduate School of Engineering.
AB LiNi0.5Mn1.5O4 was prepd. and tested as a cathode material for 5-V operation in Li **batteries**. The performance of the cathode when using a Ti mesh current collector was poor due to corrosion of the Ti mesh, whereas the **battery** based on LiNi0.5Mn1.5O4 and with an Al current collector had excellent rechargeability characteristics and a high discharge capacity. A coin **battery** was prepd. to test the stability of this cathode material. The discharge capacity was 120 mA-h/g and the rechargeability was 100% for 30 cycles. The av. discharge potential was 4.7 V vs. Li/Li+. Accordingly, this **battery** cathode material will serve better than either LiMn2O4 or LiCoO2 and its 100% cycleability indicates that electrolyte decompn. does not occur with this cathode. LiNi0.4Mn1.6O4 was prepd. from two different starting materials, Mn3O4 and MnO2. The prepd. cathode materials exhibited identical x-ray diffraction patterns, but they had different particle sizes, the particles of LiNi0.4Mn1.6O4 prepd. from Mn3O4 were one tenth the size of those prepd. from MnO2. The discharge and charge potential for LiNi0.4Mn1.6O4 prepd. from Mn3O4 is in agreement with that expected from the degree of Ni2+ substitution, whereas the charge capacity in the region of 4.7 V for **batteries** with cathodes prepd. from MnO2 was lower than the calcd. value. The performance of the MnO2-based cathode was improved by sintering under more **oxidizing** conditions. For example, LiNi0.4Mn1.6O4 prepd. from MnO2 at 800° in an oxygen atm. behaved as ideal LiNi0.4Mn1.6O4, but its total capacity was lower than the theor. value due to the presence of impurities. The electrochem. properties of LiNi0.4Mn1.6O4 depends on the presence of oxygen deficiency defects. Ideal performance can therefore be obtained by optimizing conditions for prepn. of the cathode material with respect to the reactivity of the starting

materials and the **oxidizing** environment during sintering.

IT **7440-32-6**, Titanium, uses
(current collector; effects of current collector and oxide particle size on electrochem. characteristics of lithium manganese nickel oxide cathodes for **batteries**)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium manganese nickel oxide cathode **battery** characteristic; **cathode** current **collector** particle size **battery**

IT **Battery cathodes**
Particle size
(effects of current **collector** and oxide particle size on electrochem. characteristics of lithium manganese nickel oxide cathodes for **batteries**)

IT Secondary **batteries**
(lithium; effects of current collector and oxide particle size on electrochem. characteristics of lithium manganese nickel oxide cathodes for **batteries**)

IT 7429-90-5, Aluminum, uses **7440-32-6**, Titanium, uses
(current collector; effects of current collector and oxide particle size on electrochem. characteristics of lithium manganese nickel oxide cathodes for **batteries**)

IT 1313-13-9, Manganese oxide (MnO2), uses 1317-35-7, Manganese oxide (Mn3O4)
(effect of particle size on electrochem. characteristics of lithium manganese nickel oxide **battery** cathodes prepd. from)

IT 12031-75-3, Lithium manganese nickel oxide (Li2Mn3NiO8)
130811-81-3, Lithium manganese nickel oxide (LiMn1.6Ni0.4O4)
(effects of current collector and oxide particle size on electrochem. characteristics of lithium manganese nickel oxide cathodes for **batteries**)

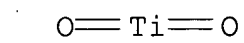
L46 ANSWER 4 OF 17 HCA COPYRIGHT 2006 ACS on STN

138:109643 Connection for joining a current collector to a terminal pin for a primary lithium or secondary lithium ion **electrochemical cell**. Wutz, Philip S.; Hennrich, Shenandoah; Skoumpris, John (Wilson Greatbatch Technologies, Inc., USA). U.S. Pat. Appl. Publ. US 2003022062 A1 20030130, 11 pp. (English). CODEN: USXXCO. APPLICATION: US 2002-207608 20020729. PRIORITY: US 2001-308763P 20010730.

AB A rod-shaped coupler for connecting a current collector to a

terminal pin, is disclosed. The coupler is secured to the entire width of the current **collector**, preferably the **cathode** in a cell of a case neg. design, and is generally aligned along the longitudinal axis of the electrode assembly. An extension portion of the coupler extends beyond the electrode assembly and is of a hollow, tubular structure crimped or otherwise collapsed into surrounding contact with the terminal pin. The coupler and terminal pin are then welded together. Preferably, the terminal pin is roughened prior to effecting the connection. This method of attachment is suitable for either primary lithium or **secondary** lithium ion **cells**, particularly those powering implantable biomedical devices.

IT **13463-67-7**, **Titanium oxide**, uses
(connection for joining current collector to terminal pin for primary lithium or secondary lithium ion **battery**)
RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)



IT **7440-32-6**, Titanium, uses
(coupler; connection for joining current collector to terminal pin for primary lithium or secondary lithium ion **battery**)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M002-30
ICS H01M002-26; H01M004-66; H01M004-58; H01M010-04
INCL 429178000; 429180000; 429161000; 429245000; 429231800; 029623100
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63
ST lithium **battery** current collector joining terminal pin
IT **Battery** electrodes
Medical goods
(connection for joining current collector to terminal pin for primary lithium or secondary lithium ion **battery**)
IT Carbon black, uses
Coke
(connection for joining current collector to terminal pin for primary lithium or secondary lithium ion **battery**)
IT Carbon fibers, uses
(hairy; connection for joining current collector to terminal pin for primary lithium or secondary lithium ion **battery**)

IT Prosthetic materials and Prosthetics
(implants; connection for joining current collector to terminal pin for primary lithium or secondary lithium ion **battery**)

IT Primary **batteries**
Secondary **batteries**
(lithium; connection for joining current collector to terminal pin for primary lithium or secondary lithium ion **battery**)

IT Nickel alloy, base
(coupler; connection for joining current collector to terminal pin for primary lithium or secondary lithium ion **battery**)

IT 1313-13-9, Manganese dioxide, uses 1313-99-1, Nickel oxide, uses 1332-37-2, Iron oxide, uses 1344-70-3, Copper oxide 7439-93-2, Lithium, uses 7782-42-5, Graphite, uses 11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide 11104-61-3, Cobalt oxide 11105-02-5, Silver vanadium oxide 11113-75-0, Nickel sulfide 11115-76-7, Cobalt selenide 11115-77-8, Cobalt telluride 11115-78-9, Copper sulfide 11115-99-4, Nickel selenide 11116-00-0, Nickel telluride 11118-57-3, Chromium oxide 11126-12-8, Iron sulfide 11129-60-5, Manganese oxide 11130-24-8, Vanadium sulfide 12039-13-3, Titanium sulfide (TiS2) 12068-85-8, Iron disulfide 12612-50-9, Molybdenum sulfide 12623-97-1, Chromium sulfide 12627-00-8, Niobium oxide 12653-56-4, Cobalt sulfide 12673-92-6, Titanium sulfide 12687-82-0, Manganese sulfide 12789-09-2, Copper vanadium oxide 12795-09-4, Copper telluride **13463-67-7**, **Titanium oxide**, uses 37320-90-4, Manganese selenide 37359-15-2, Copper selenide 39290-91-0, Niobium sulfide 39361-71-2, Titanium telluride 50808-87-2, Molybdenum telluride 50814-22-7, Chromium telluride 50926-12-0, Iron selenide 50926-13-1, Iron telluride 54183-54-9, Molybdenum selenide 54427-25-7, Vanadium telluride 58319-81-6, Manganese telluride 64176-75-6, Niobium selenide 66675-50-1, Titanium selenide 66675-60-3, Chromium selenide 135751-98-3, Vanadium selenide 162124-03-0, Niobium telluride 181183-66-4, Copper Silver vanadium oxide
(connection for joining current collector to terminal pin for primary lithium or secondary lithium ion **battery**)

IT 7429-90-5, Aluminum, uses 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses **7440-32-6**, Titanium, uses 7440-48-4, Cobalt, uses 7440-57-5, Gold, uses 12597-68-1, Stainless steel, uses
(coupler; connection for joining current collector to terminal pin for primary lithium or secondary lithium ion **battery**)

IT 7440-44-0, Carbon, uses
(glassy; connection for joining current collector to terminal pin

for primary lithium or secondary lithium ion **battery**)

IT 7439-98-7, Molybdenum, uses 7440-03-1, Niobium, uses 7440-33-7, Tungsten, uses
(terminal pin; connection for joining current collector to terminal pin for primary lithium or secondary lithium ion **battery**)

L46 ANSWER 5 OF 17 HCA COPYRIGHT 2006 ACS on STN
130:40971 Disulfide composite cathodes and secondary lithium **batteries** using them. Kim, Hyun-Jung; Sung, Hyun-kyung; Lee, Kwan-Young (Kumho Petrochemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 10321217 A2 **19981204** Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-97391 19980409. PRIORITY: KR 1997-14883 19970422; KR 1997-41365 19970827; KR 1997-47046 19970912.

AB The title cathodes comprise (1) org. S compds. forming S-S bonds by electrolytic **oxidn**. which are reversibly regenerated by redn., (2) ≥1 of metallic components selected from transition metals, their alloys, and their ionic salts., (3) conductive C and/or conducting polymers, and (4) current collectors contg. Cu or Cu alloys. The title **batteries** use the cathodes, solid polymer electrolytes, and Li-intercalating anodes contg. Li, Li alloys, graphite, hard C, carbon fibers, and/or polyacene. The **batteries** have high capacity, energy d., and long cycle life.

IT **7440-32-6**, Titanium, uses
(composite cathodes contg. disulfide compds., transition metals, and conductive substances for lithium **batteries**)

RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-02
ICS H01M004-38; H01M004-48; H01M004-58; H01M004-60; H01M004-62; H01M004-66; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38

ST transition metal disulfide composite cathode; conducting polymer disulfide composite cathode; copper current **collector** composite **cathode**; disulfide composite cathode lithium **battery**

IT Polyacenes
(anode; composite cathodes contg. disulfide compds., transition metals, and conductive substances for lithium **batteries**)

IT Carbon fibers, uses

(anodes; composite cathodes contg. disulfide compds., transition metals, and conductive substances for lithium **batteries**)

IT **Battery** cathodes
(composite cathodes contg. disulfide compds., transition metals, and conductive substances for lithium **batteries**)

IT Carbon black, uses
Disulfides
Polyanilines
Transition metal alloys
Transition metals, uses
(composite cathodes contg. disulfide compds., transition metals, and conductive substances for lithium **batteries**)

IT Secondary **batteries**
(lithium; composite cathodes contg. disulfide compds., transition metals, and conductive substances for lithium **batteries**)

IT Lithium alloy
(anode; composite cathodes contg. disulfide compds., transition metals, and conductive substances for lithium **batteries**)

IT Copper alloy
(current **collector**; composite **cathodes** contg. disulfide compds., transition metals, and conductive substances for lithium **batteries**)

IT 638-16-4, Trithiocyanuric acid 1072-71-5, 2,5-Dimercapto-1,3,4-thiadiazole 7439-89-6, Iron, uses 7439-93-2D, Lithium, polymer complexes, electrolytes, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-20-2, Scandium, uses **7440-32-6**, Titanium, uses 7440-33-7, Tungsten, uses 7440-44-0, Carbon, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-62-2, Vanadium, uses 7440-66-6, Zinc, uses 7782-42-5, Graphite, uses 24968-79-4D, Acrylonitrile-methyl acrylate copolymer, lithium complexes, electrolytes 25233-30-1, Polyaniline 25233-34-5, Polythiophene 30604-81-0, Polypyrrole
(composite cathodes contg. disulfide compds., transition metals, and conductive substances for lithium **batteries**)

IT 7440-50-8, Copper, uses
(current **collector**; composite **cathodes** contg. disulfide compds., transition metals, and conductive substances for lithium **batteries**)

L46 ANSWER 6 OF 17 HCA COPYRIGHT 2006 ACS on STN
125:333997 An organosulfur polymer cathode with a high current capability for rechargeable **batteries**. Sotomura, Tadasha; Tatsuma, Tetsu; Oyama, Noboru (Corp. Res. Div., Matsushita Electric Ind. Co. Ltd., Osaka, 570, Japan). Journal of the Electrochemical

Society, 143(10), 3152-3157 (English) **1996**. CODEN: JESOAN. ISSN: 0013-4651. Publisher: Electrochemical Society.

AB The charge-discharge capability of a polymer composite cathode prepd. from 2,5-dimercapto-1,3,4-thiadiazole (I), polyaniline, poly(3-alkylcarboxylate-4-methylpyrrole), and acetylene black was investigated on different kinds of current collectors including copper, nickel, aluminum, and titanium foil, gold-plated titanium foil, and a porous carbon film in a lithium cell system with a gel-like polymer electrolyte. The polymer composite cathode with a copper current collector provides a relatively flat discharge p.d. (3.4 to 2.8 V) and high current capability (137 mA/g-cathode) without undue deterioration of the energy d. The **battery** can be charged up to 550 mW-h/g-cathode within 1.25 h, and it can be reversibly discharged within 1.25 h. This unique charge-discharge performance might be attributed to the redox reaction of a Cu+- or Cu2+-I complex which is formed in the first several cycles as a result of **oxidative** dissoln. of copper. The use of a thin copper current collector in place of a rather thick porous carbon film enables fabrication of polymer/lithium rechargeable **batteries** with a thin-film configuration.

IT **7440-32-6, Titanium**, uses
(composite **cathode** with current **collector** of; organosulfur polymer composite cathode with high current capability for lithium **batteries**)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST organosulfur polymer composite cathode lithium **battery**; mercaptothiadiazole polyaniline polypyrrole deriv composite cathode

IT Carbon black, uses
(composite cathode contg.; organosulfur polymer composite cathode with high current capability for lithium **batteries**)

IT Cathodes
(**battery**, organosulfur polymer composite cathode with high current capability for lithium **batteries**)

IT 1072-71-5, 2,5-Dimercapto-1,3,4-thiadiazole 25233-30-1, Polyaniline 109578-31-6 129933-82-0, 1H-Pyrrole-3-carboxylic acid, 4-methyl-, butyl ester, homopolymer
(composite cathode contg.; organosulfur polymer composite cathode with high current capability for lithium **batteries**)

IT 7440-44-0, Carbon, uses
(composite **cathode** with current **collector** of porous; organosulfur polymer composite cathode with high current capability for lithium **batteries**)

IT 7440-57-5, Gold, uses
(composite **cathode** with current **collector** of **titanium** foil plated with; organosulfur polymer composite cathode with high current capability for lithium **batteries**)
IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses **7440-32-6, Titanium**, uses 7440-50-8, Copper, uses
(composite **cathode** with current **collector** of; organosulfur polymer composite cathode with high current capability for lithium **batteries**)

L46 ANSWER 7 OF 17 HCA COPYRIGHT 2006 ACS on STN
123:37156 Problems of corrosion and other electrochemical side processes in lithium chemical power sources with non-aqueous electrolytes. Shembel, E. M.; Apostolova, R. D.; Strizhko, A. S.; Belosokhov, A. I.; Naumenko, A. F.; Rozhkov, V. V. (Ukrainian State Chemical Technology University, Dniepropetrovsk, 320005, Ukraine). Journal of Power Sources, 54(2), 421-4 (English) **1995**. CODEN: JPSODZ. ISSN: 0378-7753. Publisher: Elsevier.
AB The following electrochem. side processes were studied: (i) electrochem. corrosion processes in a short-circuited couple of active **cathode** material (FeS2)-current-**collector** material, and (ii) electrochem. and chem. decompn. of non-aq. electrolytes proceeding in parallel with the base electrochem. reaction in power sources with a working discharge voltage of 1.5 V. The dynamics and direction of corrosion processes in the couple of FeS2-current collector depend on the p.d. between the active cathode substance and the current-collector material and on the overvoltage value of conjugated electrochem. processes. In the case of a starting unreduced cathode, the redn. process takes place on pyrite and the **oxidn**. process occurs on the current collector. After a partial cathode redn. the process direction changes. The rate of decompn. of the electrolyte in the potential range of 1.5 V is detd. by its compn., the conditions of its prepn. and purifn., and the cathode material used as catalyst in the process of the decompn. of the electrolyte.
IT **7440-32-6**, Titanium, uses
(electrodes; stationary potential of different materials in LiBF4/propylene carbonate-dimethyl ether of diethylene glycol electrolyte)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

Section cross-reference(s): 72
ST lithium **battery** corrosion nonaq electrolyte
IT **Battery** electrolytes
(problems of corrosion and other electrochem. side processes in lithium chem. power sources with nonaq. electrolytes)
IT Cathodes
(**battery**, decompn. rate of different electrolytes in FeS2-based cathodes)
IT 1317-38-0, Cupric oxide, uses 10028-18-9, Nickel fluoride 11126-12-8, Iron sulfide 12356-42-2, Bismuth lead oxide Bi2Pb2O5 39368-32-6, Bismuth copper oxide Bi2CuO4 164229-98-5, Bismuth copper lead oxide (Bi2Cu0.2Pb1.8O5)
(characteristics of lithium **batteries** with different solid-phase cathodes)
IT 7429-90-5, Aluminum, uses 7439-92-1, Lead, uses 7440-02-0, Nickel, uses 7440-06-4, Platinum, uses **7440-32-6**, Titanium, uses 7440-43-9, Cadmium, uses 7440-50-8, Copper, uses 7440-66-6, Zinc, uses 7782-42-5, Graphite, uses 12661-60-8
(electrodes; stationary potential of different materials in LiBF4/propylene carbonate-dimethyl ether of diethylene glycol electrolyte)

L46 ANSWER 8 OF 17 HCA COPYRIGHT 2006 ACS on STN
114:27260 Nonaqueous-electrolyte **batteries** with titanium oxynitride-containing cathodes. Teraoka, Hirohito; Hanabusa, Soichi (Toshiba Battery Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 02242563 A2 **19900926** Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-60729 19890315.
AB The **batteries** have a layer of Ti oxynitride powder between their cathde-active mass and cahtode current collectors. The Ti oxynitride is obtained by redn. of **TiO2** in N. These **batteries** have low internal resistance and suppressed vol. change during charging and discharging. Laminar Li **batteries** using MnO2 cathodes having Ti oxynitride-coated stainless steel were prepd.
IC ICM H01M004-64
ICS H01M006-16
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery cathode collector**
titanium oxynitride; manganese oxide cathode titanium oxynitride; stainless steel **cathode collector** coating
IT **Cathodes**
(**battery**, **collectors** for, **titanium** oxynitride-coated stainless steel, for corrosion prevention)
IT 12597-68-1, Stainless steel, uses and miscellaneous
(**cathodes** with **collectors** of **titanium** oxynitride-coated, manganese dioxide, for **batteries**)

IT 37271-26-4, **Titanium** oxynitride
(**cathodes** with stainless steel **collectors** coated with, for **batteries**)
IT 1313-13-9, Manganese oxide (MnO2), uses and miscellaneous
(**cathodes**, stainless steel **collectors** with **titanium** oxynitride coatings for, in **batteries**)

L46 ANSWER 9 OF 17 HCA COPYRIGHT 2006 ACS on STN
112:127741 Selection of an corrosion-preventing material of the current **collector** of a **cathode** of a lithium-iron sulfide (FeS2) cell. Apostolova, R. D.; Shembel, E. M.; Strizhko, A. S. (Dnepropetr. Khim.-Tekhnol. Inst., Dnepropetrovsk, USSR). Zhurnal Prikladnoi Khimii (Sankt-Peterburg, Russian Federation), 62(10), 2232-6 (Russian) **1989**. CODEN: ZPKHAB. ISSN: 0044-4618.
AB The rate and directionality of corrosion processes in the studied electrolyte for the couple FeS2-metallic current collector depends on the **oxidn**.-redn. state of the pyrite. The filler of the active material of a pyrite electrode, for a Li-FeS2 cell (graphite) is a corrosion-active material. The best material for the current collector of the pyrite electrode in the Li-FeS2 system in an electrolyte of 1M LiBF4 + propylene carbonate + diglyme, according to corrosion data, is Al. To decrease the self-discharging of storage **batteries**, nonreduced pyrite with E = 3.7 eV is used, because the rate of the corrosion processes in this case is less than in the case with partially reduced pyrite.
IT **7440-32-6**, Titanium, reactions
(corrosion of, current variation with time in system of pyrite with)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

CC 72-6 (Electrochemistry)
Section cross-reference(s): 52
ST current **collector cathode** cell; aluminum current collector pyrite electrode; pyrite electrode lithium **battery**; iron sulfide electrode lithium **battery**; **battery** lithium pyrite current collector; graphite filler lithium pyrite cell; sulfide iron lithium **battery** current collector
IT **Cathodes**
(aluminum current **collector** of, for lithium-pyrite **battery**)
IT **Batteries**, secondary
(lithium-pyrite, corrosion-preventing material selection for)
IT Corrosion prevention
(of current **collector** of **cathode** of

lithium-iron sulfide system)
IT 7439-93-2, Lithium, uses and miscellaneous
(**batteries**, with pyrite, corrosion-preventing material selection for current collector in)
IT 7429-90-5, Aluminum, reactions 7439-92-1, Lead, reactions 7440-02-0, Nickel, reactions **7440-32-6**, Titanium, reactions 7440-43-9, Cadmium, reactions 7440-50-8, Copper, reactions 7440-66-6, Zinc, reactions 12597-69-2, Steel, reactions
(corrosion of, current variation with time in system of pyrite with)
IT 7429-90-5, Aluminum, uses and miscellaneous
(current **collector**, of **cathode** of lithium-iron sulfide cell, selection of corrosion-preventing material of)
IT 14283-07-9, Lithium tetrafluoroborate
(electrolyte, for lithium-pyrite secondary **battery**)
IT 108-32-7, Propylene carbonate
(lithium-pyrite secondary **battery** with electrolyte of lithium tetrafluoroborate in mixt. contg. diglyme and)
IT 111-96-6, Diglyme
(lithium-pyrite secondary **battery** with electrolyte of lithium tetrafluoroborate in mixt. of propylene carbonate and)

L46 ANSWER 10 OF 17 HCA COPYRIGHT 2006 ACS on STN
111:137484 New positive-electrode materials for lithium thin film secondary **batteries**. Meunier, G.; Dormoy, R.; Levasseur, A. (Lab. Chim. Solide, Ec. Natl. Super. Chim. Phys. Bordeaux, Talence, F-33405, Fr.). Materials Science & Engineering, B: Solid-State Materials for Advanced Technology, B3(1-2), 19-23 (English) **1989**. CODEN: MSBTEK. ISSN: 0921-5107.
AB Thin films of Ti oxysulfides (TiSxOy) were obtained by rf sputtering on Pt- or ITO-coated glass and used as intercalation cathodes in solid-state microbatteries with ternary sputtered oxide glass (B2O3-Li2O-Li2SO4) as electrolyte and evapd. Li as anode. The oxysulfide films were amorphous and hygroscopic; a homogeneous distribution of Ti, S, and O throughout the film was obsd. by SIMS profiling. More than 50 cycles were obtained at c.d. of ≤62 μA/cm2; the materials were chem. stable and no irreversible reactions occurred between electrode and electrolyte materials.
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57, 72
ST titanium oxysulfide lithium intercalation cathode; lithium titanium oxisulfide **battery** stability; boron oxide glass electrolyte **battery**; glass electrolyte **battery** lithium sulfate; electrolyte **battery** lithium oxide glass
IT Cathodes
(**battery**, titanium oxysulfide, prepn. and lithium

intercalation by, in microbattery with oxide glass electrolyte)

IT 122827-51-4P, **Titanium oxide** sulfide (TiO0.2S1.8) 122827-52-5P, **Titanium oxide** sulfide (TiO0.97S1.11) 122827-53-6P, **Titanium oxide** sulfide (**TiO2**.15S0.18) 122827-54-7P, **Titanium oxide** sulfide (TiO1.3S1.5) 122827-55-8P, **Titanium oxide** sulfide (TiO0.7S1.5) 122827-56-9P, **Titanium oxide** sulfide (TiO1.14S1.42)
(cathodes, prepn. and lithium intercalation by, in microbattery with oxide glass electrolyte)

IT 7440-06-4P, Platinum, uses and miscellaneous 50926-11-9P, ITO
(current **collectors**, **titanium** oxysulfide film **cathode** on, prepn. and lithium intercalation by, in microbattery with oxide glass electrolyte)

L46 ANSWER 11 OF 17 HCA COPYRIGHT 2006 ACS on STN

109:234188 Polymer **battery**. Ogawa, Masao; Harada, Toyoo; Toyosawa, Shinichi; Shinoda, Isamu; Kawagoe, Takahiro; Daifuku, Hideharu; Masuda, Yoshitomo (Bridgestone Corp., Japan; Seiko Electronic Components, Ltd.). Ger. Offen. DE 3805795 A1 **19880908**, 12 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1988-3805795 19880224. PRIORITY: JP 1987-43492 19870225; JP 1987-44987 19870226; JP 1987-91522 19870413.

AB A **battery** includes ≥1 electrodes of conducting polymer film; a current collector of stainless steel, Ti, C, or a stainless steel mesh contg. 10 wt.% Ni, and a separator of a polypropylene foil or a fleece of glass fiber-filled polypropylene. The film is prepd. by electropolymn. of PhNH2 or PhNH2 derivs. The current collector embedded in the polymer film of thickness d has a thickness of (0.3-0.7) d. A **battery** with a cathode of a conducting polymer film has a Li or a Li alloy anode. Polyaniline cathodes were prepd. with current collectors of various stainless steels, and cycle lives were detd. for **batteries** having these cathodes, Li-Al alloy anode, electrolyte of 1M or 3M LiBF4 in 1:1 (vol.) propylene carbonate-MeOC2H4OMe, and separator of polypropylene or polypropylene and glass fiber-filled polypropylene fleece. High cycle lives (av. 1647 cycles) were obtained with **batteries** having 3M LiBF4 electrolyte and composite separator.

IT **7440-32-6**, **Titanium**, uses and miscellaneous
(**cathodes** with current **collector** of, polyaniline, for **batteries** with org. electrolyte)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-00
ICS H01M002-22
ICA C25B003-10; C08F002-58; C08F134-00; C08G073-06
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 38, 55, 72
ST polyaniline prepn **battery** electrode; lithium aluminum alloy polyaniline **battery**; stainless steel polyaniline **battery** cathode
IT Electric conductors
(polymeric, polyanilines, manuf. of for **battery** cathodes)
IT Glass fibers, uses and miscellaneous
(separators, from polypropylene fleece filled with, in polyaniline **batteries** with org. electrolyte)
IT Cathodes
(**battery**, polyaniline, prepn. of)
IT **Batteries**, secondary
(button-type, aluminum lithium alloy-polyaniline, with org. electrolyte, performance of)
IT Polymerization
(electrochem., **oxidative**, of aniline, for **battery** electrodes)
IT 12798-95-7
(anodes, for **batteries** with org. electrolyte)
IT 7440-02-0, Nickel, uses and miscellaneous **7440-32-6**, **Titanium**, uses and miscellaneous 7440-44-0, Carbon, uses and miscellaneous 11107-04-3, SUS 316 117701-57-2 117701-58-3 117701-59-4 117701-60-7
(**cathodes** with current **collector** of, polyaniline, for **batteries** with org. electrolyte)
IT 25233-30-1P, Polyaniline
(prepn. of, by electropolymn., for **battery** cathodes)
IT 9003-07-0, Polypropylene
(separators, in polyaniline **batteries** with org. electrolyte)

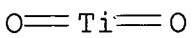
L46 ANSWER 12 OF 17 HCA COPYRIGHT 2006 ACS on STN
108:97918 Light metal-sulfur **batteries** and their manufacture.
Okuyama, Ryoichi (Yuasa Battery Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 62268069 A2 **19871120** Showa, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1986-111438 19860514.
AB **Cathode collectors** (or **cathode collectors**/cases) and case bottoms of light metal-S **batteries** are coated with a layer of ≥1 of TiC, TiN, TiCN, TiCNO, and **TiO2** on their faces in contact with the cathode-active mass of the **batteries** by welding Ti to the faces and heating the welded Ti in an appropriate atm. contg. CO2,

hydrocarbons, N, NH3, and/or O at 200-1200° for 2-20 h. Thus, an iron tube covered with Ti on its inner side was heated at 500° in a CH4-N atm. for 8 h to form a 10-μ TiCN layer. After a 50-day contact with molten NaSx at 420°, the thickness of sulfide layer formed on the tube was <10μ. No decrease of capacity or increase of internal resistance was obsd. on Na-S **batteries** using **cathode collector** /cases of the invention after 300 charge-discharge cycles.

IT **13463-67-7, Titania,** uses and miscellaneous
(anticorrosion coatings, for **cathode collectors** and **battery** cases, in sodium-sulfur **batteries**)

RN 13463-67-7 HCA

CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)



IC ICM H01M010-39
ICS H01M002-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery** sulfur cathode corrosion inhibitor; titanium carbide nitride sulfur cathode

IT **Batteries,** secondary
(sodium-sulfur, titanium-contg. ceramic coatings for corrosion inhibition in)

IT Corrosion inhibitors
(**titanium**-contg. ceramic, for **cathode collectors** and **battery** cases in sodium-sulfur **batteries**)

IT 12070-08-5, Titanium carbide (TiC) 12627-33-7, Titanium carbide nitride **13463-67-7, Titania,** uses and miscellaneous 25583-20-4, Titanium nitride (TiN) 61331-90-6, Titanium carbide nitride oxide
(anticorrosion coatings, for **cathode collectors** and **battery** cases, in sodium-sulfur **batteries**)

IT 7704-34-9, Sulfur, uses and miscellaneous
(**cathodes, collectors** and cases with **titanium**-contg. ceramic coatings for, in **batteries**)

L46 ANSWER 13 OF 17 HCA COPYRIGHT 2006 ACS on STN

102:28540 Nonaqueous **battery.** (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 59186263 A2 **19841023** Showa, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1983-60196 19830405.

AB A nonaq. **battery** has a light metal anode, a

cathode, a **Ti cathode collector** having 0.01-0.21-μ oxide layer, and an electrolyte; a halide is used in the cathode active material and/or in the electrolyte. **Ti oxide** film may be formed by treatment in O, by inorg. acid, or by anodic **oxidn**. The **battery** has a high stability of internal impedance during storage at high temp. Thus, a **battery** contained a cathode formed by coating graphite fluoride on collector of expanded Ti by using acetylene black conductor and PTFE binder. The collector was previously treated at 350° for 0.5 h, to produce golden luster. The anode was Li sheet with expanded Ni collector. The electrolyte was LiBF4 in γ-butyrolactone. Tests showed a high stability during storage at 70° for 1 mo, because of the passivation of Ti collector against corroding action of halide ions.

IT **7440-32-6**, uses and miscellaneous
(cathode grids from oxide-coated, nonaq. **battery**)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IT **13463-67-7**
(cathode grids from titanium coated with, nonaq. **battery**)
RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

IC H01M004-66; H01M006-16
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** cathode grid **titanium oxide**
IT Cathodes
(**battery**, oxide-coated titanium grids for nonaq.-)
IT **7440-32-6**, uses and miscellaneous
(cathode grids from oxide-coated, nonaq. **battery**)
IT **13463-67-7**
(cathode grids from titanium coated with, nonaq. **battery**)

L46 ANSWER 14 OF 17 HCA COPYRIGHT 2006 ACS on STN
101:195310 Rechargeable lithium/sulfur ammoniate **battery**.
Bennett, John E.; Harney, David E.; Mitchell, Thomas A. (Diamond Shamrock Corp. , USA). U.S. US 4469761 A **19840904**, 12 pp. Cont.-in-part of U.S. Ser. No. 210,739, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1982-405882 19820920. PRIORITY: US

1980-210739 19801126.

AB The title ambient-temp. **battery** using an alkali or alk.-earth metal and S electrochem. pair comprises an anode of anhyd. liq., a catholyte contg. anhyd. S, and a cationic permeable separator. Thus, a **battery** prepd. with a liq. anode of anhyd. NH3 contg. Na, a catholyte of liq. anhyd. NH3 contg. S, and a Ti substrate cathode coated with a mixt. of Sn, Ti, and Ru oxides was repeatedly charged-discharged at charging voltage of 2.4-2.6 V and a discharging voltage of 2.0-1.5 V.

IT **7440-32-6**, uses and miscellaneous
(**cathode** current **collector** from oxide-coated, sulfur **battery**, ambient-temp.)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IT **13463-67-7**
(**cathode** current **collector** from **titanium** coated with oxide mixt. contg., sulfur **battery**, ambient-temp.)

RN 13463-67-7 HCA

CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

IC H01M010-44

INCL 429050000

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST sodium sulfur ammoniate **battery**; lithium sulfur ammoniate **battery**; **battery** room temp lithium sulfur

IT **Batteries**, secondary
(lithium-sulfur, ambient-temp. ammoniate)

IT **7440-32-6**, uses and miscellaneous
(**cathode** current **collector** from oxide-coated, sulfur **battery**, ambient-temp.)

IT 1332-29-2 11113-84-1 **13463-67-7**
(**cathode** current **collector** from **titanium** coated with oxide mixt. contg., sulfur **battery**, ambient-temp.)

L46 ANSWER 15 OF 17 HCA COPYRIGHT 2006 ACS on STN

90:31153 Electrochemical reactor to be incorporated in an installation for producing **titanium dioxide** by the sulfate method from ilmenite. (Battelle Memorial Institute, Switz.). Fr. Demande FR 2363642 **19780331**, 11 pp. (French). CODEN:

FRXXBL. APPLICATION: FR 1977-26558 19770901.

AB An angular diaphragm cell, with an external fluid bed cathode of 1 to 2 mm graphite or Pb particles, was used to reduce Fe3+ to Fe2+ in the reaction liquor. A **Ti** or Pb **cathode** current **collector** contacted the particles. The tubular microporous diaphragm was made of either polyethylene, polypropylene, or ceramic material. A tubular Pb anode coated with either PbO2 or MnO2 was used in a H2SO4 electrolyte. The catholyte was pumped into the bottom of the cell compartment and out the top with sufficient velocity to fluidize and prevent fouling of the cathode particles by colloidal impurities from the ilmenite. Several cells, operated in series, were required to completely reduce the Fe3+.

IT **13463-67-7P**, preparation
(prodn. of, from ilmenite, **electrochem. cell** for)

RN 13463-67-7 HCA

CN Titanium oxide (TiO2) (8CI,~9CI) (CA INDEX NAME)

O=Ti=O

IC C25B009-00

CC 72-8 (Electrochemistry)
Section cross-reference(s): 53

ST **titania** prodn ilmenite **electrolytic cell** ; iron redn **titania electrolytic cell**

IT Ceramic materials and wares
(diaphragm, in **electrolytic cell** for **titanium oxide** prodn. from ilmenite)

IT **Electrolytic cells**
(diaphragm, for **titanium oxide** prodn. from ilmenite)

IT 7439-92-1P, uses and miscellaneous
(anode, coated with oxides of lead or manganese, for **titanium oxide** prodn. from ilmenite)

IT 1309-60-0P 1313-13-9P, uses and miscellaneous
(coating, on lead anode, for **titanium oxide** prodn. from ilmenite)

IT 9002-88-4 9003-07-0
(diaphragm, in **electrolytic cell** for **titanium oxide** prodn. from ilmenite)

IT **13463-67-7P**, preparation
(prodn. of, from ilmenite, **electrochem. cell** for)

IT 7439-89-6P, reactions
(redn. of, electrochem., in **titanium oxide** prepn. from ilmenite in **electrochem. cell**)

IT 12168-52-4P

(**titanium oxide** electrochem. prodn. of, diaphragm cell for)

L46 ANSWER 16 OF 17 HCA COPYRIGHT 2006 ACS on STN
89:119793 Photoelectrolysis cell for manufacturing hydrogen using solar energy. Nozik, Arthur J. (Allied Chemical Corp., USA). Ger. Offen. DE 2752596 **19780601**, 34 pp. Addn. to Ger. Offen. 2,650,267. (German). CODEN: GWXXBX. APPLICATION: DE 1977-2752596 19771125.

AB A process and app. are described for recovery of H and O by electrolysis of H2O and esp. the recovery of H by photoelectrolysis of H2O by using solar radiation. An anode in contact with an electrolyte which displays on its side a cathodic counter electrode in contact with it, is exposed to solar radiation. The anode consists of at least 1 thin semiconducting layer of n-type, which has a bandwidth of .apprx.0.5-4.0 eV, and is arranged on a conductive metal carrier support. The counter electrode comprises at least 1 semiconducting layer of p-type, which has a bandwidth of .apprx.0.5-4.0 eV and is also arranged on a carrier support. The p-type layer lies next to the n-type layer, and both are exposed essentially simultaneously to the incident solar radiation. An anodic initial voltage of 0-1 V relative to that of the cathodic counter electrode is applied to the anode, and the **cathode collects** the H which is produced. The n-type suitably doped anode material is chosen from **TiO2**, In2O3, SnO2, GaAs, GaP, WO3, SiC, Fe2O3, CdS, CuInS2, Si and/or MTiO3 (where M is La, Ba, Sr, the rare earth metals or transition metals). The p-type suitably doped cathode material is chosen from GaP, GaAs, Si, Cu2S, Cu2O, InP, ZnSe, CdTe and/or CuInS2. The electrode and counter electrode are in the form of a film .apprx.500 Å-10 μm thick. In an example, a crystal electrode of **TiO2** with an ohmic contact of In and a crystal electrode of p-GaP, coated 1st with a 1% Zn-99% Au layer and then a Au layer to form an ohmic contact, were used in a photoelectrolysis cell where exposure to solar radiation was through a quartz window. The **electrolyte** in the **cell** was 0.2N H2SO4. The efficiency of the cell for H prodn. was 0.3%.

IT **13463-67-7**, uses and miscellaneous
(electrode of, with indium ohmic contact for hydrogen recovery in photoelectrolytic cell)

RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

IT **7440-32-6**, uses and miscellaneous
(in hydrogen recovery by solar radiation in photoelectrolytic

cell)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC C25B001-04
CC 72-12 (Electrochemistry)
Section cross-reference(s): 74, 49
IT **13463-67-7**, uses and miscellaneous
(electrode of, with indium ohmic contact for hydrogen recovery in photoelectrolytic cell)
IT **7440-32-6**, uses and miscellaneous
(in hydrogen recovery by solar radiation in photoelectrolytic cell)
IT 7440-74-6, uses and miscellaneous
(**titanium dioxide** crystal electrode with ohmic contact of, for hydrogen recovery by solar radiation in photoelectrolytic cell)

L46 ANSWER 17 OF 17 HCA COPYRIGHT 2006 ACS on STN
84:108444 **Electrochemical cells** having an **electrolytic** solution comprising a covalent inorganic oxyhalide solvent. Auborn, James J. (GTE Laboratories, Inc., USA). U.S. US 3926669 **19751216**, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1973-385127 19730802.
AB The cells consist of an **oxidizable** active anode material, a solid metallic **cathode** current **collector**, and an electrolytic soln. between and in contact with the anode and the **cathode** current **collector**. The electrolytic soln. is a liq. covalent inorg. oxyhalide or thiohalide solvent with a solute dissolved in it. The inorg. solvent is the sole **oxidant** material and the sole solvent material in the cell. The cathode comprises a solid, nonconsumable, elec. conducting, inert current collector on the surface of which the inorg. solvent is electrochem. reduced. The inorg. solvent in conjunction with the **oxidizable** anode services as a source of elec. energy during operation of the cell.
IT **7440-32-6**, uses and miscellaneous
(**cathode** current **collector**, in oxyhalide or thiohalide electrolyte **battery** with lithium anode)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC H01M
INCL 136006000LN
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST primary **battery** oxyhalide electrolyte; thiohalide electrolyte primary **battery**
IT **Batteries**, primary
(lithium-inert **cathode** current **collector**, with oxyhalide or thiohalide electrlyte)
IT 7439-93-2, uses and miscellaneous
(anodes, in oxyhalide or thiohalide electrolyte **battery** with inert **cathode** current **collector**)
IT 507-16-4 3931-89-3 3982-91-0 7719-09-7 7789-59-5 7791-23-3 10025-87-3 13455-03-3
(**battery** electrolyte contg., with inert **cathode** current **collector** and lithium anode)
IT 7439-89-6, uses and miscellaneous 7439-92-1, uses and miscellaneous 7439-96-5, uses and miscellaneous 7439-97-6, uses and miscellaneous 7439-98-7, uses and miscellaneous 7440-02-0, uses and miscellaneous 7440-03-1, uses and miscellaneous 7440-05-3, uses and miscellaneous 7440-06-4, uses and miscellaneous 7440-21-3, uses and miscellaneous 7440-22-4, uses and miscellaneous 7440-25-7, uses and miscellaneous **7440-32-6**, uses and miscellaneous 7440-33-7, uses and miscellaneous 7440-48-4, uses and miscellaneous 7440-56-4, uses and miscellaneous 7440-57-5, uses and miscellaneous 11109-50-5
(**cathode** current **collector**, in oxyhalide or thiohalide electrolyte **battery** with lithium anode)

=> D L47 1-11 CBIB ABS HITSTR HITIND

L47 ANSWER 1 OF 11 HCA COPYRIGHT 2006 ACS on STN
138:274140 Segmented mesoporous ceramic electrodes for electrochemical devices. Sugnaux, Francois (Switz.). Eur. Pat. Appl. EP 1300897 A1 20030409, 10 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2001-810956 20011002.
AB Novel electroactive semiconductive materials based on self-assembled and nano-templated ceramics allow the fabrication of flexible electrodes and devices, mesoporous electrode materials thereof and composite **current collectors**. This invention also relates to electrodes, i.e. anode or cathode, based on nano-templated ceramics, built as flexible members made from mesoporous composites of the electroactive material directly grown from a **current collector**, optionally as a member exhibiting a high aspect ratio like a ribbon or a cylinder. Applications for these new self-assembled and nano-templated

mesoporous electrodes include electrochem. devices like dye photovoltaic cells, high power **batteries**, fast electrochromic devices as well as high capacity ultracapacitors.

IT **7440-32-6**, Titanium, uses **13463-67-7**, Titania, uses
(segmented mesoporous ceramic electrodes for electrochem. devices)

RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

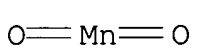
IC ICM H01M004-00
ICS H01M014-00; H01G009-20; D03D015-00; D03D001-02
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72, 74, 76
ST **electrochem cell** segmented mesoporous ceramic electrode; photoelectrochem solar cell segmented mesoporous ceramic electrode; **battery** segmented mesoporous ceramic electrode; capacitor segmented mesoporous ceramic electrode
IT **Battery** electrodes
Capacitor electrodes
Electrochromic devices
Nanostructures
Photoelectrochemical cells
Photoelectrodes
(segmented mesoporous ceramic electrodes for electrochem. devices)
IT **7440-32-6**, Titanium, uses **13463-67-7**, Titania, uses 50926-11-9, Ito
(segmented mesoporous ceramic electrodes for electrochem. devices)

L47 ANSWER 2 OF 11 HCA COPYRIGHT 2006 ACS on STN
137:281883 Process for attaching anode lead to **battery** case by laser/electron beam welding. Skoumpris, John (USA). U.S. Pat. Appl. Publ. US 2002142216 A1 20021003, 14 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-821672 20010329.
AB The present invention provides a new process for attaching the anode lead to the **battery** case, creating a case neg. design. The anode lead is an extension of the anode **current**

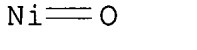
collector and is nested between the case and the lid. Excess lead material is ground or cut off and the case to lid seal is achieved by laser/electron beam welding. The new procedure enhances the hermicity of the cell and the new process is applicable to a no. of addnl. applications. This includes primary lithium **batteries**, implantable **batteries**, lithium based rechargeable cells, also acid or alk. based **batteries**.

IT **1313-13-9**, Manganese dioxide, uses **1313-99-1**, Nickel oxide, uses **1344-70-3**, Copper oxide **7440-32-6**, Titanium, uses **11104-61-3**, Cobalt oxide **11105-02-5**, Silver vanadium oxide **11115-78-9**, Copper sulfide **11126-12-8**, Iron sulfide **12039-13-3**, Titanium sulfide (TiS2) **12068-85-8**, Iron disulfide **12597-68-1**, Stainless steel, uses **12789-09-2**, Copper vanadium oxide **13463-67-7**, **Titanium oxide**, uses **181183-66-4**, Copper silver vanadium oxide
(process for attaching anode lead to **battery** case by laser/electron beam welding)

RN 1313-13-9 HCA
CN Manganese oxide (MnO2) (8CI, 9CI) (CA INDEX NAME)



RN 1313-99-1 HCA
CN Nickel oxide (NiO) (8CI, 9CI) (CA INDEX NAME)



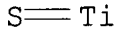
RN 1344-70-3 HCA
CN Copper oxide (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

RN 11104-61-3 HCA
CN Cobalt oxide (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11105-02-5 HCA
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RN 11115-78-9 HCA
CN Copper sulfide (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11126-12-8 HCA
CN Iron sulfide (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12039-13-3 HCA
CN Titanium sulfide (TiS2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

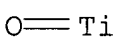


RN 12068-85-8 HCA
CN Iron sulfide (FeS2) (8CI, 9CI) (CA INDEX NAME)

RN 12597-68-1 HCA
CN Stainless steel (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12789-09-2 HCA
CN Copper vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Cu	x	7440-50-8

RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)



RN 181183-66-4 HCA
CN Copper silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	x	17778-80-2
V	x	7440-62-2
Cu	x	7440-50-8
Ag	x	7440-22-4

IC ICM H01M002-02
ICS H01M002-04; H01M002-30; H01M004-58; H01M006-10
INCL 429181000; X42-917.6; X42-9 9.4; X42-917.5; X42-917.8; X42-923.18
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63
ST **battery** anode lead case attaching laser electron beam welding
IT Containers
(boxes; process for attaching anode lead to **battery** case by laser/electron beam welding)
IT Carbon fibers, uses
(hairy; process for attaching anode lead to **battery** case by laser/electron beam welding)
IT Medical goods
(implantable; process for attaching anode lead to **battery** case by laser/electron beam welding)
IT Primary **batteries**
Secondary **batteries**
(lithium; process for attaching anode lead to **battery** case by laser/electron beam welding)
IT **Battery** anodes
Electron beams
Laser radiation
(process for attaching anode lead to **battery** case by laser/electron beam welding)
IT Carbon black, uses
Coke
(process for attaching anode lead to **battery** case by laser/electron beam welding)
IT 7440-44-0, Carbon, uses
(glassy; process for attaching anode lead to **battery** case by laser/electron beam welding)
IT **1313-13-9**, Manganese dioxide, uses **1313-99-1**, Nickel oxide, uses 1332-37-2, Iron oxide, uses **1344-70-3**, Copper oxide 7429-90-5, Aluminum, uses **7440-32-6**, Titanium, uses 7782-42-5, Graphite, uses 11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide **11104-61-3**, Cobalt oxide **11105-02-5**, Silver vanadium oxide 11113-75-0, Nickel sulfide 11115-76-7, Cobalt selenide 11115-77-8, Cobalt telluride **11115-78-9**, Copper sulfide 11115-99-4, Nickel selenide 11116-00-0, Nickel telluride 11118-57-3, Chromium oxide **11126-12-8**, Iron sulfide 11129-60-5, Manganese oxide 11130-24-8, Vanadium sulfide **12039-13-3**, Titanium sulfide

(TiS2) **12068-85-8**, Iron disulfide **12597-68-1**, Stainless steel, uses 12612-50-9, Molybdenum sulfide 12623-97-1, Chromium sulfide 12627-00-8, Niobium oxide 12653-56-4, Cobalt sulfide 12673-92-6, Titanium sulfide 12687-82-0, Manganese sulfide **12789-09-2**, Copper vanadium oxide 12795-09-4, Copper telluride **13463-67-7**, **Titanium oxide**, uses 37320-90-4, Manganese selenide 37359-15-2, Copper selenide 39290-91-0, Niobium sulfide 39361-71-2, Titanium telluride 50808-87-2, Molybdenum telluride 50814-22-7, Chromium telluride 50926-12-0, Iron selenide 50926-13-1, Iron telluride 54183-54-9, Molybdenum selenide 54427-25-7, Vanadium telluride 58319-81-6, Manganese telluride 64176-75-6, Niobium selenide 66675-50-1, Titanium selenide 66675-60-3, Chromium selenide 135751-98-3, Vanadium selenide 162124-03-0, Niobium telluride **181183-66-4**, Copper silver vanadium oxide
(process for attaching anode lead to **battery** case by laser/electron beam welding)

L47 ANSWER 3 OF 11 HCA COPYRIGHT 2006 ACS on STN
137:250324 **Electrochemical cell** having an electrode with a phosphonate additive in the electrode active mixture. Gan, Hong; Takeuchi, Esther S. (USA). U.S. Pat. Appl. Publ. US 2002136956 A1 20020926, 9 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-813567 20010321.

AB An **electrochem. cell** of either a primary or a secondary chem., is disclosed. In either case, the cell has a neg. electrode of lithium or of an anode material which is capable of intercalating and de-intercalating lithium coupled with a pos. electrode of a cathode active material. A phosphonate compd. is mixed with either the anode material or the cathode active material prior to contact with its **current collector**. The resulting electrode couple is activated by a nonaq. electrolyte. The electrolyte flows into and throughout the electrodes causing the phosphonate additive to dissolve in the electrolyte. The phosphonate solute is then able to contact the lithium to provide an elec. insulating and ionically conducting passivation layer thereon.

IT **1313-13-9**, Manganese dioxide, uses **1313-99-1**, Nickel oxide nio, uses **1344-70-3**, Copper oxide **11104-61-3**, Cobalt oxide **11105-02-5**, Silver vanadium oxide **11115-78-9**, Copper sulfide **11126-12-8**, Iron sulfide **12039-13-3**, Titanium sulfide (TiS2) **12068-85-8**, Iron disulfide **12789-09-2**, Copper vanadium oxide **13463-67-7**, **Titanium oxide**, uses **181183-66-4**, Copper Silver vanadium oxide
(**electrochem. cell** having electrode with phosphonate additive in electrode active mixt.)

RN 1313-13-9 HCA

CN Manganese oxide (MnO2) (8CI, 9CI) (CA INDEX NAME)

O=Mn=O

RN 1313-99-1 HCA
CN Nickel oxide (NiO) (8CI, 9CI) (CA INDEX NAME)

Ni=O

RN 1344-70-3 HCA
CN Copper oxide (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11104-61-3 HCA
CN Cobalt oxide (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11105-02-5 HCA
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RN 11115-78-9 HCA
CN Copper sulfide (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11126-12-8 HCA
CN Iron sulfide (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12039-13-3 HCA
CN Titanium sulfide (TiS2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

S=Ti=S

RN 12068-85-8 HCA
CN Iron sulfide (FeS2) (8CI, 9CI) (CA INDEX NAME)

S=Fe=S

RN 12789-09-2 HCA
CN Copper vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Cu	x	7440-50-8

RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

RN 181183-66-4 HCA
CN Copper silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Cu	x	7440-50-8
Ag	x	7440-22-4

IT **12597-68-1**, Stainless steel, uses
(**electrochem. cell** having electrode with phosphonate additive in electrode active mixt.)
RN 12597-68-1 HCA
CN Stainless steel (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **7440-32-6**, Titanium, uses
(powder; **electrochem. cell** having electrode with phosphonate additive in electrode active mixt.)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-62
ICS H01M010-44
INCL 429232000; X42-921.2; X42-921.7; X42-9 5.2
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63
ST **battery** phosphonate additive electrode active mixt
IT Fluoropolymers, uses
(binder; **electrochem. cell** having electrode with phosphonate additive in electrode active mixt.)

IT **Battery** anodes
Battery cathodes
(**electrochem. cell** having electrode with phosphonate additive in electrode active mixt.)

IT Carbon fibers, uses
(**electrochem. cell** having electrode with phosphonate additive in electrode active mixt.)

IT Carbon black, uses
(**electrochem. cell** having electrode with phosphonate additive in electrode active mixt.)

IT Medical goods
(implantable; **electrochem. cell** having electrode with phosphonate additive in electrode active mixt.)

IT Primary **batteries**
Secondary **batteries**
(lithium; **electrochem. cell** having electrode with phosphonate additive in electrode active mixt.)

IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-20-3, Diisopropyl ether 108-29-2, γ-Valerolactone 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide 143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 872-50-4, n-Methylpyrrolidone, uses **1313-13-9**, Manganese dioxide, uses **1313-99-1**, Nickel oxide nio, uses 1332-37-2, Iron oxide, uses **1344-70-3**, Copper oxide 2923-17-3 2923-20-8 4437-85-8, Butylene carbonate 5137-45-1, 1-Ethoxy-2-methoxyethane 7439-93-2, Lithium, uses 7790-69-4, Lithium nitrate 7791-03-9, Lithium perchlorate 11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide **11104-61-3**, Cobalt oxide **11105-02-5**, Silver vanadium oxide 11113-75-0, Nickel sulfide 11115-76-7, Cobalt selenide 11115-77-8, Cobalt telluride **11115-78-9**, Copper sulfide 11115-99-4, Nickel selenide 11116-00-0, Nickel telluride 11118-57-3, Chromium oxide **11126-12-8**, Iron sulfide 11129-60-5, Manganese oxide 11130-24-8, Vanadium sulfide 12026-36-7, Silver vanadium oxide AgV2O5.5 **12039-13-3**, Titanium sulfide (TiS2) **12068-85-8**, Iron disulfide 12612-50-9, Molybdenum sulfide 12623-97-1, Chromium sulfide 12627-00-8, Niobium oxide 12653-56-4, Cobalt sulfide 12673-92-6, Titanium sulfide 12687-82-0, Manganese sulfide **12789-09-2**, Copper vanadium oxide 12795-09-4, Copper telluride 12798-95-7 13453-75-3, Lithium fluorosulfonate **13463-67-7**, **Titanium oxide**, uses 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate

14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 37320-90-4, Manganese selenide 37359-15-2, Copper selenide 39290-91-0, Niobium sulfide 39361-71-2, Titanium telluride 50808-87-2, Molybdenum telluride 50814-22-7, Chromium telluride 50926-12-0, Iron selenide 50926-13-1, Iron telluride 54183-54-9, Molybdenum selenide 54427-25-7, Vanadium telluride 56525-42-9, Methyl propyl carbonate 58319-81-6, Manganese telluride 64176-75-6, Niobium selenide 66675-50-1, Titanium selenide 66675-60-3, Chromium selenide 90076-65-6 115028-88-1 132404-42-3 135751-98-3, Vanadium selenide 162124-03-0, Niobium telluride 173478-95-0, Silver vanadium oxide Ag0.35V2O5.18 **181183-66-4**, Copper Silver vanadium oxide 346712-58-1, Silver vanadium oxide Ag0.8V2O5.4
(**electrochem. cell** having electrode with phosphonate additive in electrode active mixt.)

IT 762-04-9, Diethyl phosphonate 868-85-9, Dimethyl phosphonate 1610-33-9, Ethyl methyl phosphonate 1809-19-4, Dibutyl phosphonate 1809-21-8, Dipropyl phosphonate 4712-55-4, Diphenyl phosphonate 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses **12597-68-1**, Stainless steel, uses 17176-77-1, Dibenzyl phosphonate
(**electrochem. cell** having electrode with phosphonate additive in electrode active mixt.)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses **7440-32-6**, Titanium, uses
(powder; **electrochem. cell** having electrode with phosphonate additive in electrode active mixt.)

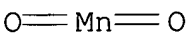
L47 ANSWER 4 OF 11 HCA COPYRIGHT 2006 ACS on STN
137:250323 **Electrochemical cell** having an electrode with a nitrate additive in the electrode active mixture. Gan, Hong; Takeuchi, Esther S. (USA). U.S. Pat. Appl. Publ. US 2002136950 A1 20020926, 8 pp. (English). CODEN: USXXCO. APPLICATION: US 2001-813569 20010321.

AB An **electrochem. cell** of either a primary or a secondary chem., is disclosed. In either case, the cell has a neg. electrode of lithium or of an anode material which is capable of intercalating and de-intercalating lithium coupled with a pos. electrode of a cathode active material. A nitrate compd. is mixed with either the anode material or the cathode active material prior to contact with its **current collector**. The resulting electrode couple is activated by a nonaq. electrolyte. The electrolyte flows into and throughout the electrodes causing the nitrate additive to dissolve in the electrolyte. The nitrate solute is then able to contact the lithium to provide an elec. insulating

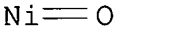
and ionically conducting passivation layer thereon.

IT **1313-13-9**, Manganese dioxide, uses **1313-99-1**, Nickel oxide (NiO), uses **1344-70-3**, Copper oxide **11104-61-3**, Cobalt oxide **11105-02-5**, Silver vanadium oxide **11115-78-9**, Copper sulfide **11126-12-8**, Iron sulfide **12039-13-3**, Titanium sulfide (TiS2) **12068-85-8**, Iron disulfide **12789-09-2**, Copper vanadium oxide **13463-67-7**, **Titanium oxide**, uses **51311-17-2**, Carbon fluoride **181183-66-4**, Copper Silver vanadium oxide
(**electrochem. cell** having electrode with nitrate additive in electrode active mixt.)

RN 1313-13-9 HCA
CN Manganese oxide (MnO2) (8CI, 9CI) (CA INDEX NAME)



RN 1313-99-1 HCA
CN Nickel oxide (NiO) (8CI, 9CI) (CA INDEX NAME)



RN 1344-70-3 HCA
CN Copper oxide (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11104-61-3 HCA
CN Cobalt oxide (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11105-02-5 HCA
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RN 11115-78-9 HCA
CN Copper sulfide (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11126-12-8 HCA
CN Iron sulfide (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12039-13-3 HCA
CN Titanium sulfide (TiS2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

S═Ti═S

RN 12068-85-8 HCA
CN Iron sulfide (FeS2) (8CI, 9CI) (CA INDEX NAME)

S═Fe═S

RN 12789-09-2 HCA
CN Copper vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Cu	x	7440-50-8

RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O═Ti═O

RN 51311-17-2 HCA
CN Carbon fluoride (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 181183-66-4 HCA
CN Copper silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Cu	x	7440-50-8
Ag	x	7440-22-4

IT **7440-32-6**, Titanium, uses **12597-68-1**, Stainless steel, uses
(powder; **electrochem. cell** having electrode with nitrate additive in electrode active mixt.)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

RN 12597-68-1 HCA
CN Stainless steel (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IC ICM H01M004-62
ICS H01M010-44
INCL 429212000; X42-9 5.2; X42-921.7; X42-923.2
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63
ST **battery** electrode nitrate additive
IT Fluoropolymers, uses
(binder; **electrochem. cell** having electrode with nitrate additive in electrode active mixt.)
IT **Battery** anodes
Battery cathodes
(**electrochem. cell** having electrode with nitrate additive in electrode active mixt.)
IT Coke
(**electrochem. cell** having electrode with nitrate additive in electrode active mixt.)
IT Carbon black, uses
(**electrochem. cell** having electrode with nitrate additive in electrode active mixt.)
IT Medical goods
(implantable; **electrochem. cell** having electrode with nitrate additive in electrode active mixt.)
IT Primary **batteries**
Secondary **batteries**
(lithium; **electrochem. cell** having electrode with nitrate additive in electrode active mixt.)
IT Nitrates, uses
(org.; **electrochem. cell** having electrode with nitrate additive in electrode active mixt.)
IT 67-68-5, Dmso, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-20-3, Diisopropyl ether 108-29-2, γ-Valerolactone 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 872-50-4, n-Methylpyrrolidone, uses **1313-13-9**, Manganese dioxide, uses **1313-99-1**, Nickel oxide (NiO), uses 1332-37-2, Iron oxide, uses **1344-70-3**, Copper oxide 2923-17-3 2923-20-8 4437-85-8,

Butylene carbonate 5137-45-1, 1-Ethoxy-2-methoxyethane 7439-93-2, Lithium, uses 7790-69-4, Lithium nitrate 7791-03-9, Lithium perchlorate 11098-99-0, Molybdenum oxide 11099-11-9, Vanadium oxide **11104-61-3**, Cobalt oxide **11105-02-5**, Silver vanadium oxide 11113-75-0, Nickel sulfide 11115-76-7, Cobalt selenide 11115-77-8, Cobalt telluride **11115-78-9**, Copper sulfide 11115-99-4, Nickel selenide 11116-00-0, Nickel telluride 11118-57-3, Chromium oxide **11126-12-8**, Iron sulfide 11129-60-5, Manganese oxide 11130-24-8, Vanadium sulfide 12026-36-7, Silver vanadium oxide AgV2O5.5 **12039-13-3**, Titanium sulfide (TiS2) **12068-85-8**, Iron disulfide 12612-50-9, Molybdenum sulfide 12623-97-1, Chromium sulfide 12627-00-8, Niobium oxide 12653-56-4, Cobalt sulfide 12673-92-6, Titanium sulfide 12687-82-0, Manganese sulfide **12789-09-2**, Copper vanadium oxide 12795-09-4, Copper telluride 12798-95-7 13453-75-3, Lithium fluorosulfate **13463-67-7**, **Titanium oxide**, uses 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 37320-90-4, Manganese selenide 37359-15-2, Copper selenide 39290-91-0, Niobium sulfide 39361-71-2, Titanium telluride 50808-87-2, Molybdenum telluride 50814-22-7, Chromium telluride 50926-12-0, Iron selenide 50926-13-1, Iron telluride **51311-17-2**, Carbon fluoride 54183-54-9, Molybdenum selenide 54427-25-7, Vanadium telluride 56525-42-9, Methyl propyl carbonate 58319-81-6, Manganese telluride 64176-75-6, Niobium selenide 66675-50-1, Titanium selenide 66675-60-3, Chromium selenide 90076-65-6 115028-88-1 132404-42-3 162124-03-0, Niobium telluride 173478-95-0, Silver vanadium oxide Ag0.35V2O5.18 **181183-66-4**, Copper Silver vanadium oxide 346712-58-1, Silver vanadium oxide Ag0.8V2O5.4
(**electrochem. cell** having electrode with nitrate additive in electrode active mixt.)

IT 543-29-3, IsoButyl nitrate 627-13-4, Propyl nitrate 926-05-6, tert-Butyl nitrate 928-45-0, Butyl nitrate 1712-64-7, Isopropyl nitrate 2104-20-3, Phenyl nitrate 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 15285-42-4, Benzyl nitrate
(**electrochem. cell** having electrode with nitrate additive in electrode active mixt.)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses **7440-32-6**, Titanium, uses **12597-68-1**, Stainless steel, uses
(powder; **electrochem. cell** having electrode with nitrate additive in electrode active mixt.)

L47 ANSWER 5 OF 11 HCA COPYRIGHT 2006 ACS on STN
136:372303 Double **current collector** anode design for alkali metal ion **electrochemical cells**. Gan, Hong; Rubino, Robert S.; Takeuchi, Esther S. (Wilson Greatbatch Ltd., USA). Eur. Pat. Appl. EP 1207571 A2 20020522, 11 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2001-127533 20011118. PRIORITY: US 2000-249688P 20001117; US 2001-8977 20011108.

AB A new sandwich neg. electrode design for a **secondary cell** is provided comprising a "sacrificial" alkali metal along with a carbonaceous anode material. In the case of a hard carbon anode material, the sacrificial alkali metal is preferably lithium and is sized to compensate for the initial irreversible capacity of this anode material. Upon activating the cells, the lithium metal automatically intercalates into the hard carbon anode material. That way, the sacrificial lithium is consumed and compensates for the generally unacceptable irreversible capacity of hard carbon. The superior cycling longevity of hard carbon now provides a **secondary cell** of extended use beyond that known for conventional **secondary cells** having only graphitic anode materials.

IT **1313-13-9**, Manganese dioxide, uses **1344-70-3**, Copper oxide **11105-02-5**, Silver vanadium oxide **12039-13-3**, **Titanium** sulfide (TiS2) **12068-85-8**, Iron sulfide fes2 **12789-09-2**, Copper vanadium oxide **51311-17-2**, Carbon fluoride **181183-66-4**, Copper silver vanadium oxide
(double **current collector** anode design for alkali metal ion **electrochem. cells**)

RN 1313-13-9 HCA
CN Manganese oxide (MnO2) (8CI, 9CI) (CA INDEX NAME)

O═Mn═O

RN 1344-70-3 HCA
CN Copper oxide (8CI, 9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 11105-02-5 HCA
CN Silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Ag	x	7440-22-4

RN 12039-13-3 HCA
CN Titanium sulfide (TiS2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

S=Ti=S

RN 12068-85-8 HCA
CN Iron sulfide (FeS2) (8CI, 9CI) (CA INDEX NAME)

S=Fe=S

RN 12789-09-2 HCA
CN Copper vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Cu	x	7440-50-8

RN 51311-17-2 HCA
CN Carbon fluoride (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 181183-66-4 HCA
CN Copper silver vanadium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
V	x	7440-62-2
Cu	x	7440-50-8
Ag	x	7440-22-4

IT **12597-68-1**, Stainless steel, uses
(double **current collector** anode design for alkali metal ion **electrochem. cells**)
RN 12597-68-1 HCA
CN Stainless steel (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **7440-32-6, Titanium**, uses
(powder; double **current collector** anode design for alkali metal ion **electrochem. cells**)
RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-02
ICS H01M004-36; H01M004-66; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63
ST **battery** double **current collector** anode design; implantable medical device **battery** anode design
IT **Battery** anodes
Secondary **batteries**
(double **current collector** anode design for alkali metal ion **electrochem. cells**)
IT Alkali metals, uses
Alkaline earth metals
Carbon black, uses
Carbonaceous materials (technological products)
Coke
Group IIIB elements
(double **current collector** anode design for alkali metal ion **electrochem. cells**)
IT Medical goods
(implantable; double **current collector** anode design for alkali metal ion **electrochem. cells**)
IT Borate glasses
Phosphate glasses
(tin borophosphate; double **current collector** anode design for alkali metal ion **electrochem. cells**)
IT 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 11101-13-6
(**current collector**; double **current collector** anode design for alkali metal ion **electrochem. cells**)
IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, DiEthyl carbonate 108-29-2, γ-Valerolactone 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide 143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 872-50-4, uses **1313-13-9**, Manganese dioxide, uses 1314-62-1, Vanadium pentoxide, uses 1317-37-9, Iron sulfide fes **1344-70-3**,

Copper oxide 2923-17-3 5137-45-1, 1-Ethoxy-2-methoxyethane 7439-93-2, Lithium, uses 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 7784-01-2, Silver chromate 7791-03-9, Lithium perchlorate **11105-02-5**, Silver vanadium oxide 12019-06-6, Copper dioxide 12031-65-1, Lithium nickel oxide linio2 **12039-13-3**, **Titanium** sulfide (TiS2) 12057-17-9, Lithium manganese oxide limn2o4 12057-24-8, Lithia, uses **12068-85-8**, Iron sulfide fes2 12162-79-7, Lithium manganese oxide limno2 12162-92-4, Lithium vanadium oxide liv2o5 12190-79-3, Cobalt lithium oxide colio2 **12789-09-2**, Copper vanadium oxide 13453-75-3, Fluorosulfuric acid, lithium salt 13478-41-6, Copper fluoride Cuf 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18282-10-5, Tin dioxide 18424-17-4, Lithium hexafluoroantimonate 20667-12-3, Silver oxide ag2o 21324-40-3, Lithium hexafluorophosphate 21651-19-4, Tin monoxide 22205-45-4, Copper sulfide cu2s 25455-73-6, Silver oxide ag2o2 29935-35-1, Lithium hexafluoroarsenate 33454-82-9 35363-40-7, Ethyl propyl carbonate **51311-17-2**, Carbon fluoride 56525-42-9, Methyl propyl carbonate 90076-65-6 113443-18-8, Silicon oxide SiO 115028-88-1 131344-56-4, Cobalt lithium nickel oxide 132404-42-3 **181183-66-4**, Copper silver vanadium oxide 188029-35-8, Lithium **titanium oxide** Li4-7Ti5O12 256650-80-3, Cobalt lithium tin oxide Co0.92LiSn0.08O2 423734-10-5, Cobalt lithium nitride (Co0.1-0.6Li2.4-2.9N) 423734-14-9, Lithium nickel nitride (Li2.4-2.9Ni0.1-0.6N)
(double **current collector** anode design for alkali metal ion **electrochem. cells**)

IT **12597-68-1**, Stainless steel, uses
(double **current collector** anode design for alkali metal ion **electrochem. cells**)

IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses **7440-32-6**, **Titanium**, uses
(powder; double **current collector** anode design for alkali metal ion **electrochem. cells**)

L47 ANSWER 6 OF 11 HCA COPYRIGHT 2006 ACS on STN

131:325078 Primary or secondary electrochemical generator. Gratzel, Michael; Sugnaux, Francois R.; Pappas, Nicholas (Ecole Polytechnique Federale De Lausanne (Epfl) Sri, Switz.). PCT Int. Appl. WO 9959218 A1 **19991118**, 29 pp. DESIGNATED STATES: W: CN, JP, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1999-EP3261 19990508. PRIORITY: EP 1998-810431 19980512.

AB A high power d. and high capacity primary or secondary electrochem. generator has at least one electrode composed of an elec. active

solid material, the electrode having a mesoporous texture forming a bi-continuous junction of large sp. surface area with the electrolyte. The specific morphol. of the electroactive material permits high rates of ion insertion in the solid while allowing for rapid ion transport in electrolyte present in the porous space of the electrode. Specific methods for prepn. of the electrode are disclosed, in particular the control of the electrode morphol. by use of surfactant assemblies such as surfactant micelles exerting a templating effect during the chem. synthesis of the electroactive material.

IT **12597-68-1**, Stainless steel, uses
(**current collector**; primary or secondary electrochem. generator)
RN 12597-68-1 HCA
CN Stainless steel (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
IT **1313-13-9**, Manganese dioxide, uses **11126-12-8**, Iron sulfide **12039-13-3**, Titanium disulfide **13463-67-7**, **Titania**, uses
(primary or secondary electrochem. generator)
RN 1313-13-9 HCA
CN Manganese oxide (MnO2) (8CI, 9CI) (CA INDEX NAME)

O=Mn=O

RN 11126-12-8 HCA
CN Iron sulfide (9CI) (CA INDEX NAME)
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 12039-13-3 HCA
CN Titanium sulfide (TiS2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

S=Ti=S

RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

IC ICM H01M010-40
ICS H01M004-48; H01M004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** electrode transition metal oxide chalcogenide
IT Primary **batteries**
Secondary **batteries**
(lithium; primary or secondary electrochem. generator)

IT **Battery** electrodes
(primary or secondary electrochem. generator)
IT **Titanium** alloy
(**current collector**; primary or secondary electrochem. generator)
IT 7440-44-0, Carbon, uses **12597-68-1**, Stainless steel, uses
(**current collector**; primary or secondary electrochem. generator)
IT 7782-42-5, Graphite, uses
(paper, **current collector**; primary or secondary electrochem. generator)
IT 96-48-0 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 646-06-0, Dioxolane 1309-37-1, Iron oxide (Fe2O3), uses 1312-43-2, Indium oxide **1313-13-9**, Manganese dioxide, uses 1313-27-5, Molybdenum trioxide, uses 1313-96-8, Niobium pentoxide 1314-35-8, Tungsten trioxide, uses 1314-62-1, Vanadium pentoxide, uses 1317-33-5, Molybdenum sulfide mos2, uses 1317-61-9, Iron oxide (Fe3O4), uses 1738-36-9, Methoxyacetonitrile 2923-17-3, Lithium trifluoroacetate 11113-84-1, Ruthenium oxide **11126-12-8**, Iron sulfide 11129-18-3, Cerium oxide **12039-13-3**, Titanium disulfide 12055-23-1, Hafnium dioxide 12067-45-7, Titanium diselenide 12138-09-9, Tungsten sulfide ws2 12645-46-4, Iridium oxide **13463-67-7**, **Titania**, uses 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 26856-69-9, Methoxypropionitrile 28106-65-2, Tetrafluoropropanol 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 37245-92-4, Ruthenium sulfide 39300-70-4, Lithium nickel oxide 39457-42-6, Lithium manganese oxide 52627-24-4, Cobalt lithium oxide 59763-75-6, Tantalum oxide 66216-18-0 90076-65-6 131344-56-4, Cobalt lithium nickel oxide 131651-65-5, 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt 132404-42-3 248588-09-2, Indium lithium manganese sodium oxide
(primary or secondary electrochem. generator)

L47 ANSWER 7 OF 11 HCA COPYRIGHT 2006 ACS on STN
127:265585 Electrode with conductive fillers for lead-acid **battery**. Edwards, Dean B.; Appel, Philip W. (Idaho Research Foundation, USA). U.S. US 5667917 A **19970916**, 10 pp., Cont. of U.S. Ser. No. 938,616, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1995-436903 19950508. PRIORITY: US 1991-759187 19910910; US 1992-938616 19920901.
AB The title electrode comprises a **current collector** and active material carried by the **current collector**, and the active material includes a conductive filler or a mixt. of conductive and nonconductive fillers such that

the use of active material is >35% at the 1-h rate. The active material may form multilayers, and the several layers of the multilayers may contain varying amts. of conductive or nonconductive fillers. The nonconductive filler is hollow glass microspheres and conductive filler is selected hollow Pb glass microspheres, graphite, graphite fibers, titanium oxide, and SnO2. The hollow glass microspheres are coated with conductive metal or metal oxide medium.

IT **13463-67-7**, Titanium oxide (TiO2), uses
(lead-acid **battery** electrodes contg. conductive fillers of)
RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

IT **7440-32-6**, Titanium, uses
(lead-acid **battery** electrodes contg. conductive fillers of hollow glass microspheres coated with)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-56
INCL 429228000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 57
ST lead acid **battery** electrode conductive filler
IT **Battery** electrodes
(conductive fillers-contg. lead-acid)
IT Carbon fibers, uses
(graphite; lead-acid **battery** electrodes contg. conductive fillers of)
IT Lead glasses
(lead-acid **battery** electrodes contg. conductive fillers of microspheres of)
IT Glass, uses
(lead-acid **battery** electrodes contg. nonconductive fillers of microspheres of)
IT 7782-42-5, Graphite, uses **13463-67-7**, Titanium oxide (TiO2), uses 18282-10-5, Tin oxide (SnO2)
(lead-acid **battery** electrodes contg. conductive fillers of)
IT 1314-23-4, Zirconia, uses 1335-25-7, Lead oxide 7439-92-1, Lead, uses 7439-95-4, Magnesium, uses 7440-02-0, Nickel, uses

7440-03-1, Niobium, uses 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses **7440-32-6**, Titanium, uses 7440-33-7, Tungsten, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-57-5, Gold, uses 7440-58-6, Hafnium, uses 7440-61-1, Uranium, uses 7440-66-6, Zinc, uses 7440-67-7, Zirconium, uses 13494-80-9, Tellurium, uses
(lead-acid **battery** electrodes contg. conductive fillers of hollow glass microspheres coated with)

L47 ANSWER 8 OF 11 HCA COPYRIGHT 2006 ACS on STN
125:91277 **Titanium** suboxide-coated **current collector** for lead-acid **batteries** and its preparation. Fiorino, Mary E.; Valdes, Jorge L. (AT&T Corp., USA). U.S. US 5521029 A **19960528**, 7 pp. (English). CODEN: USXXAM. APPLICATION: US 1995-392441 19950222.

AB A colloidal aq. dispersion of Ti suboxide particles is formed and its pH is adjusted to ≤3. The substrate to be coated and a pos. electrode are placed into the prepd. colloidal dispersion for electrophoretic deposition of the suboxide. The **current collector** substrate is selected from Pb and Pb alloy grids.

IT **7440-32-6**, Titanium, uses
(**battery** electrode grids from titanium suboxide-coated)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IT **12065-98-4**, Titanium oxide (Ti5O9) **12143-55-4**, Titanium oxide (Ti4O7) **12143-56-5**, Titanium oxide (Ti6O11) **12143-58-7**, Titanium oxide (Ti7O13) **12143-59-8**, Titanium oxide (Ti8O15) **12143-60-1**, Titanium oxide (Ti9O17)
(lead-acid **battery** electrode grids coated with)
RN 12065-98-4 HCA
CN Titanium oxide (Ti5O9) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	9	17778-80-2
Ti	5	7440-32-6

RN 12143-55-4 HCA
CN Titanium oxide (Ti4O7) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number

O	7	17778-80-2
Ti	4	7440-32-6

RN 12143-56-5 HCA
CN Titanium oxide (Ti6O11) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	11	17778-80-2
Ti	6	7440-32-6

RN 12143-58-7 HCA
CN Titanium oxide (Ti7O13) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	13	17778-80-2
Ti	7	7440-32-6

RN 12143-59-8 HCA
CN Titanium oxide (Ti8O15) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	15	17778-80-2
Ti	8	7440-32-6

RN 12143-60-1 HCA
CN Titanium oxide (Ti9O17) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	17	17778-80-2
Ti	9	7440-32-6

IC ICM H01M004-68
ICS H01M004-73
INCL 205150000
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** lead acid electrode grid; electrode grid
battery titanium suboxide coating
IT Electrodes
(**battery**, lead-acid; grids from titanium

suboxide-coated)
IT Lead alloy, base
(**battery** electrode grids from titanium suboxide-coated)
IT 7439-92-1, Lead, uses
(**battery** electrode grids from titanium suboxide-coated)
IT 1335-25-7, Lead oxide 7429-90-5, Aluminum, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses **7440-32-6**, Titanium, uses 7440-33-7, Tungsten, uses 7440-67-7, Zirconium, uses
(**battery** electrode grids from titanium suboxide-coated)
IT **12065-98-4**, Titanium oxide (Ti5O9) **12143-55-4**, Titanium oxide (Ti4O7) **12143-56-5**, Titanium oxide (Ti6O11) **12143-58-7**, Titanium oxide (Ti7O13) **12143-59-8**, Titanium oxide (Ti8O15) **12143-60-1**, Titanium oxide (Ti9O17)
(lead-acid **battery** electrode grids coated with)

L47 ANSWER 9 OF 11 HCA COPYRIGHT 2006 ACS on STN
118:262846 Apparatus and process for electrochemically decomposing salt solutions to form the relevant base and acid. Traini, Carlo; Faita, Giuseppe. (De Nora Permelec S.p.A., Italy). Eur. Pat. Appl. EP 522382 A1 **19930113**, 22 pp. DESIGNATED STATES: R: PT. (English). CODEN: EPXXDW. APPLICATION: EP 1992-110897 19920626. PRIORITY: IT 1991-MI1765 19910627.
AB An electrolyzer comprises ≥1 elementary cell(s) equipped with a novel H-depolarized anode assembly, and a relevant method produces the parent base and acid of a salt by means of electrolysis of solns. contg. the salt. The anode assembly comprises a cation-exchange membrane, an electrocatalytic sheet, and a rigid **current collector** which provides for a multiplicity of contact points with the electrocatalytic sheet; the membrane, electrocatalytic sheet and **current collector** are simply pressed together by the pressure exerted by the electrolyte and/or by the resilient means of the electrolyzer.
IT **7440-32-6**, Titanium, reactions
(electrolyzer contg., for decompn. of salt solns.)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IT **13463-67-7**, Titanium oxide, uses
(electrolyzer contg., for decompn. of salt solns.)
RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

IC ICM C25B009-00
ICS C25B001-22; C25B001-16
CC 72-9 (Electrochemistry)
Section cross-reference(s): 49
IT **Electrolytic cells**
(for decompn. of salt solns.)
IT 7440-06-4, Platinum, uses **7440-32-6**, Titanium, reactions
7782-42-5, Graphite, uses
(electrolyzer contg., for decompn. of salt solns.)
IT 11113-84-1, Ruthenium oxide 12597-69-2, Steel, uses 12604-59-0, Hastelloy C-276 **13463-67-7**, Titanium oxide, uses
(electrolyzer contg., for decompn. of salt solns.)

L47 ANSWER 10 OF 11 HCA COPYRIGHT 2006 ACS on STN
97:185441 Electrodes for metal-bromine **batteries**. (Meidensha Electric Mfg. Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 57121157 A2 **19820728** Showa, 6 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1981-6642 19810120.
AB A mixt. of a polyolefinic plastic 100, carbon black 20-45, and Ti oxide 8-12 parts is rolled to prep. cathode **current collector** for metal-Br **batteries**.
IT **13463-67-7**
(cathode **current collector** contg., bromine-metal **battery**)
RN 13463-67-7 HCA
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O=Ti=O

IC H01M004-96
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST titanium oxide bromine **battery** cathode
IT Cathodes
(**battery**, **titanium** oxide-contg. **current collector** for bromine-metal)
IT **13463-67-7**
(cathode **current collector** contg., bromine-metal **battery**)
IT 7726-95-6, uses and miscellaneous
(cathodes, **battery**, **titanium** oxide-contg. **current collector** for)

L47 ANSWER 11 OF 11 HCA COPYRIGHT 2006 ACS on STN
96:171162 Electrolysis of an aqueous solution of an alkali metal

chloride using a cation exchange membrane. Iijima, Tokuzo; Samejima, Yasushi; Kano, Toshiji; Hatta, Yoshio (Kanegafuchi Chemical Industry Co., Ltd. , Japan). Fr. Demande FR 2487385 A1 **19820129**, 8 pp. (French). CODEN: FRXXBL. APPLICATION: FR 1981-8223 19810424. PRIORITY: JP 1980-103804 19800728.

AB A procedure and cell are described for the title electrolysis. Springs placed on the anodes exercise a pos. pressure on the cathodic compartment of the cell. This arrangement provides a uniform spacing (0-3 mm) between the anode and cathode during electrolysis, allowing operation at a lower cell potential. Alkali metal hydroxide of high purity is obtained. In an example, a dimensionally stable anode was prepd. by coating Ti with RuO2-TiO2. The cell uses a cathode of Fe and a **current collector** of Cu. The cation exchange membrane is formed by converting a sulfonic acid-type(Nafion 417) membrane into a carboxylic acid-type on a cathode to a thickness of 20 μm. In electrolyzing aq. NaCl at anodic c.d. 25A/cm2, NaOH (30%) was obtained with a current efficiency of 94%.

IT **7440-32-6**, uses and miscellaneous
(anodes from oxide-coated, for brine electrolysis)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IT **13463-67-7**, uses and miscellaneous
(anodes from titanium coated with, for brine electrolysis)

RN 13463-67-7 HCA

CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

O═Ti═O

IC C25B001-46; C25B001-34

CC 72-9 (Electrochemistry)
Section cross-reference(s): 49

ST brine electrolysis alkali manuf; cation exchange membrane **electrolytic cell**; membrane **electrolytic cell**

IT Brines
(**electrolysis** of, in **cell** with cation exchange membrane, alkali manuf. from)

IT **Electrolytic cells**
(for brines, with cation exchange membrane)

IT **7440-32-6**, uses and miscellaneous
(anodes from oxide-coated, for brine electrolysis)

IT 12036-10-1 **13463-67-7**, uses and miscellaneous

(anodes from titanium coated with, for brine electrolysis)
IT 7440-50-8, uses and miscellaneous
(**current collector** rod, in brine **electrolytic cell**)
IT 77323-49-0
(in brine **electrolytic cell**)

=> D HIS L50-

FILE 'HCA' ENTERED AT 14:46:42 ON 13 OCT 2006
L50 299 S L1 AND (L2 OR L30) AND L6
L51 211139 S OXIDE#(2A)(FILM? OR LAYER? OR COAT?)
L52 27 S L50 AND L51

FILE 'LCA' ENTERED AT 14:50:04 ON 13 OCT 2006
L53 7651 S (FILM? OR THINFILM? OR LAYER? OR OVERLAY? OR OVERLAID?

FILE 'HCA' ENTERED AT 14:50:23 ON 13 OCT 2006
L54 219134 S OXIDE#(2A)L53
L55 30 S L50 AND L54
L56 26 S (L52 OR L55) NOT (L45 OR L46 OR L47)
L57 16 S L56 AND 1840-2001/PY,PRY

=> D L57 1-16 CBIB ABS HITSTR HITIND

L57 ANSWER 1 OF 16 HCA COPYRIGHT 2006 ACS on STN
139:340084 Application and design of a high rate defibrillator lithium **battery**. Gan, Hong; Takeuchi, Esther S. (USA). U.S. Pat. Appl. Publ. US 2003207168 A1 20031106, 16 pp., Cont.-in-part of U.S. Ser. No. 809,404. (English). CODEN: USXXCO. APPLICATION: US 2003-435232 20030509. PRIORITY: US 2000-PV194840 20000405; US 2001-809404 20010315.
AB A method for powering an implantable medical device with a lithium **electrochem. cell** having a sandwich cathode of SVO (silver vanadium oxide)/CFx/SVO active materials is disclosed. A preferred cathode is of a γ-SVO/CFx/SVO or (γ+ε)-SVO/CFx/(γ+ε)-SVO sandwich configuration.
IT **7440-32-6**, Titanium, uses
(**current collector**; application and design of high rate defibrillator lithium **battery**)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M010-44
ICS H01M004-54; H01M004-58
INCL 429050000; 429219000; 429231500; 429052000; 429231700
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63
ST defibrillator lithium **battery** design application; implantable lithium **battery** design application
IT **Battery** cathodes
Heart, disease
(application and design of high rate defibrillator lithium **battery**)
IT Alkali metals, uses
(application and design of high rate defibrillator lithium **battery**)
IT Carbonaceous materials (technological products)
(coating; application and design of high rate defibrillator lithium **battery**)
IT Ethers, uses
(cyclic, solvent; application and design of high rate defibrillator lithium **battery**)
IT Medical goods
(implantable; application and design of high rate defibrillator lithium **battery**)
IT Primary **batteries**
(lithium; application and design of high rate defibrillator lithium **battery**)
IT Lactams
(solvent; application and design of high rate defibrillator lithium **battery**)
IT Esters, uses
(solvent; application and design of high rate defibrillator lithium **battery**)
IT Ethers, uses
(solvent; application and design of high rate defibrillator lithium **battery**)
IT Nickel alloy, base
(**current collector**; application and design of high rate defibrillator lithium **battery**)
IT 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane 3459-92-5, Dibenzyl carbonate 7439-93-2, Lithium, uses 9003-07-0, Polypropylene 11105-02-5, Silver vanadium oxide 12026-36-7, Silver vanadium oxide AgV2O5.5 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 51311-17-2, Carbon fluoride 346712-58-1, Silver vanadium oxide Ag0.8V2O5.4 364605-96-9, Silver vanadium oxide Ag1.82V4O10.91

364621-24-9, Silver vanadium oxide Ag0.8-1V2O5.4-5.5
(application and design of high rate defibrillator lithium **battery**)

IT 7439-88-5, Iridium, uses 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 12645-46-4, Iridium **oxide**
(**coating**; application and design of high rate defibrillator lithium **battery**)

IT 7429-90-5, Aluminum, uses 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses **7440-32-6**, Titanium, uses 7440-57-5, Gold, uses 11101-13-6 12597-68-1, Stainless steel, uses
(**current collector**; application and design of high rate defibrillator lithium **battery**)

IT 463-79-6D, Carbonic acid, dialkyl ester
(solvent; application and design of high rate defibrillator lithium **battery**)

L57 ANSWER 2 OF 16 HCA COPYRIGHT 2006 ACS on STN

139:55490 Silver vanadium oxide/carbon fluoride parallel cell design within the same casing for powering an implantable medical device. Gan, Hong; Takeuchi, Esther S. (Wilson Greatbatch Technologies, Inc., USA). Eur. Pat. Appl. EP 1324406 A2 20030702, 10 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2002-258941 20021224. PRIORITY: US 2001-PV344701 20011226.

AB A new cathode design has a first cathode active material of a relatively low energy d. but of a relatively high rate capability contacted to a first **cathode current collector** and a second **cathode** active material having a relatively high energy d. but of a relatively low rate capability in contact with a second **cathode current collector**. The first and second **cathode current collectors** are connected to a common terminal lead. The present cathode design is useful for powering an implantable medical device requiring a high rate discharge application.

IT **7440-32-6**, Titanium, uses
(**current collector**; silver vanadium oxide/carbon fluoride parallel cell design within same casing for powering implantable medical device)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-02
ICS H01M004-36; H01M010-40; H01M006-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63
ST **battery** powering implantable medical device; silver vanadium oxide carbon fluoride **battery** implantable medical device
IT Carbonaceous materials (technological products)
(**coating**; silver vanadium **oxide**/carbon fluoride parallel cell design within same casing for powering implantable medical device)
IT Primary **batteries**
(lithium; silver vanadium oxide/carbon fluoride parallel cell design within same casing for powering implantable medical device)
IT **Battery** cathodes
(silver vanadium oxide/carbon fluoride parallel cell design within same casing for powering implantable medical device)
IT 7782-42-5, Graphite, uses
(**coating**; silver vanadium **oxide**/carbon fluoride parallel cell design within same casing for powering implantable medical device)
IT 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses **7440-32-6**, Titanium, uses 7440-57-5, Gold, uses 12597-68-1, Stainless steel, uses
(**current collector**; silver vanadium oxide/carbon fluoride parallel cell design within same casing for powering implantable medical device)

L57 ANSWER 3 OF 16 HCA COPYRIGHT 2006 ACS on STN
139:9359 Carbon-coated titanium **current collectors** for use in alkali metal **electrochemical cells**.
Paulot, William M.; Roy, Mark J.; Freitag, Gary L.; Frustaci, Dominick J.; Gan, Hong; Takeuchi, Esther S. (Wilson Greatbatch Technologies, Inc., USA). Eur. Pat. Appl. EP 1320139 A2 20030618, 8 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2002-257861 20021114. PRIORITY: US 2001-332195P 20011114; US 2002-417248P 20021009.
AB An alkali metal/solid cathode **electrochem. cell**, such as of a Li/SVO couple, having the cathode material supported on a titanium **current collector** screen coated with a carbonaceous material is described. The thus-coated titanium **current collector** provides the cell with higher rate capability in comparison to cells of a similar chem. having the cathode active material contacted to an uncoated titanium **current collector**.
IT **7440-32-6**, Titanium, uses
(carbon-**coated** titanium **current**

collectors for use in alkali metal **electrochem. cells**)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-66
ICS H01M010-40; H01M006-16; H01M004-08
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** carbon coated titanium **cathode** **current collector**
IT **Battery** cathodes
Coating materials
(carbon-coated titanium **current collectors** for use in alkali metal **electrochem. cells**)
IT Alkali metals, uses
Alkaline earth metals
Group IIIB elements
(carbon-coated titanium **current collectors** for use in alkali metal **electrochem. cells**)
IT Primary **batteries**
(lithium, Li/silver vanadium **oxide**; carbon-**coated** titanium **current collectors** for use in alkali metal **electrochem. cells**)
IT 108-32-7, Propylene carbonate 110-71-4 3459-92-5, Dibenzyl carbonate 7439-93-2, Lithium, uses 7440-02-0, Nickel, uses **7440-32-6**, Titanium, uses 11105-02-5, Silver vanadium **oxide** 12798-95-7 29935-35-1, Lithium hexafluoroarsenate 181183-66-4, Copper Silver vanadium **oxide**
(carbon-**coated** titanium **current collectors** for use in alkali metal **electrochem. cells**)
IT 7440-44-0, Carbon, uses
(carbon-coated titanium **current collectors** for use in alkali metal **electrochem. cells**)
IT 7782-42-5, Graphite, uses
(pigment; carbon-coated titanium **current collectors** for use in alkali metal **electrochem. cells**)

L57 ANSWER 4 OF 16 HCA COPYRIGHT 2006 ACS on STN
138:324157 Noble metals coated on titanium **current collectors** for use in nonaqueous Li/CFx **batteries**.
Takeuchi, Ester S.; Platt, Bruce; Smesko, Sally Ann; Ziarniak, Eric; Roy, Mark (Wilson Greatbatch Technologies, Inc., USA). Eur. Pat. Appl. EP 1309023 A2 20030507, 12 pp. DESIGNATED STATES: R: AT, BE,

CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK. (English). CODEN: EPXXDW. APPLICATION: EP 2002-257617 20021104. PRIORITY: US 2001-335353P 20011102.

AB A lithium/fluorinated carbon **electrochem. cell** having the CFx material supported on a titanium **current collector** screen sputter coated with a noble metal is described. The gold, iridium, palladium, platinum, rhodium and ruthenium-coated titanium **current collector** provides the cell with higher rate capability, even after exposure to high temps., in comparison to cells of a similar chem. having the CFx contacted to a titanium **current collector** painted with a carbon coating.

IT **7440-32-6**, Titanium, uses
(noble metals **coated** on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-66

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium carbon fluoride **battery current collector**; noble metal coated titanium **current collector battery**

IT Atomizing (spraying)
(acoustic; noble metals coated on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

IT Vapor deposition process
(chem.; noble metals coated on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

IT Noble metals
(coating; noble metals coated on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

IT Coating process
(dip; noble metals coated on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

IT Coating process
(flame-spraying; noble metals coated on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

IT Primary **batteries**
(lithium; noble metals coated on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

IT Atomizing (spraying)
Battery cathodes
Coating materials

Electrolysis
Sputtering
(noble metals coated on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

IT Coating process
(painting; noble metals coated on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

IT Vapor deposition process
(phys.; noble metals coated on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

IT Coating process
(plasma spraying; noble metals coated on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

IT Coating process
(thermal spraying; noble metals coated on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

IT 7439-88-5, Iridium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-57-5, Gold, uses
(coating; noble metals coated on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

IT 96-48-0, γ-Butyrolactone 1313-13-9, Manganese dioxide, uses 1344-70-3, Copper **oxide** 7439-93-2, Lithium, uses 7440-02-0, Nickel, uses 7440-25-7, Tantalum, uses **7440-32-6**, Titanium, uses 7440-33-7, Tungsten, uses 7440-50-8, Copper, uses 11105-02-5, Silver vanadium **oxide** 11115-78-9, Copper sulfide 11126-12-8, Iron sulfide 12039-13-3, Titanium sulfide (TiS2) 12068-85-8, Iron sulfide fes2 12789-09-2, Copper vanadium **oxide** 14283-07-9, Lithium tetrafluoroborate 39300-70-4, Lithium nickel **oxide** 51311-17-2, Carbon fluoride 52627-24-4, Cobalt lithium **oxide** 181183-66-4, Copper Silver vanadium **oxide**
(noble metals **coated** on titanium **current collectors** for use in nonaq. Li/CFx **batteries**)

L57 ANSWER 5 OF 16 HCA COPYRIGHT 2006 ACS on STN
137:65723 Layered arrangements of lithium anodes for **batteries**. Chu, May-Ying; Visco, Steven J.; Dejonghe, Lutgard C. (Polyplus Battery Company, USA). U.S. US 6413285 B1 20020702, 25 pp., Cont.-in-part of U.S. Ser. No. 431,190. (English). CODEN: USXXAM. APPLICATION: US 2000-640467 20000816. PRIORITY: US 1999-431190 19991101.

AB A method employing a bonding layer is used to form active metal electrodes having barrier layers. Active metals such as lithium are highly reactive in ambient conditions. The method involves fabricating a lithium electrode or other active metal electrode without depositing the barrier layer on a layer of metal. Rather a

smooth barrier layer is formed on a smooth substrate such as a web carrier or polymeric electrolyte. A bonding or alloying layer is formed on top of the barrier layer. Lithium or other active material is then attached to the bonding layer to form the active metal electrode. A **current collector** may also be attached to the lithium or active metal during the process.

IT **7440-32-6**, Titanium, uses
(foil bonding layer; layered arrangements of lithium anodes for **batteries**)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-04
ICS H01M004-36
INCL 029623400
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST **battery** lithium anode layered arrangement
IT Glass, uses
(barrier layer; layered arrangements of lithium anodes for **batteries**)
IT Vapor deposition process
(chem.; layered arrangements of lithium anodes for **batteries**)
IT **Battery** anodes
Battery electrolytes
Ionic conductivity
(layered arrangements of lithium anodes for **batteries**)
IT Polyoxyalkylenes, uses
(layered arrangements of lithium anodes for **batteries**)
IT Polyethers, uses
(layered arrangements of lithium anodes for **batteries**)
IT Polymer blends
(layered arrangements of lithium anodes for **batteries**)
IT Polyphosphazenes
(layered arrangements of lithium anodes for **batteries**)
IT Polythioethers
(layered arrangements of lithium anodes for **batteries**)
IT Primary **batteries**
(lithium; layered arrangements of lithium anodes for **batteries**)
IT Vapor deposition process
(phys.; layered arrangements of lithium anodes for **batteries**)
IT Imines
(polyimines; layered arrangements of lithium anodes for

batteries)
IT Polymers, uses
(releasable web carrier; layered arrangements of lithium anodes for **batteries**)
IT Polyesters, uses
(substrate; layered arrangements of lithium anodes for **batteries**)
IT Aluminum alloy, base
(foil bonding layer; layered arrangements of lithium anodes for **batteries**)
IT Lithium alloy, base
(layered arrangements of lithium anodes for **batteries**)
IT 7439-92-1, Lead, uses 7439-93-2, Lithium, uses 7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses **7440-32-6**, Titanium, uses 7440-36-0, Antimony, uses
(foil bonding layer; layered arrangements of lithium anodes for **batteries**)
IT 10377-52-3, Lithium phosphate 12627-14-4, Lithium silicate 12676-27-6 37220-89-6, Lithium aluminate 184905-46-2, Lithium nitrogen phosphorus **oxide** 236388-73-1, Lithium silicide sulfide 236388-74-2, Lithium boride sulfide 236388-75-3, Aluminum lithium sulfide 236388-76-4, Lithium phosphide sulfide
(glass, barrier **layer**; layered arrangements of lithium anodes for **batteries**)
IT 12798-95-7
(layered arrangements of lithium anodes for **batteries**)
IT 12597-68-1, Stainless steel, uses
(layered arrangements of lithium anodes for **batteries**)
IT 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7440-31-5, Tin, uses 7440-50-8, Copper, uses 7440-66-6, Zinc, uses
(releasable web carrier; layered arrangements of lithium anodes for **batteries**)
IT 25038-59-9, Polyethylene terephthalate, uses
(substrate; layered arrangements of lithium anodes for **batteries**)

L57 ANSWER 6 OF 16 HCA COPYRIGHT 2006 ACS on STN
136:372302 Sandwich cathode design using chemically similar active materials for alkali metal **electrochemical cells**
. Gan, Hong; Takeuchi, Esther S. (Wilson Greatbatch Ltd., USA). Eur. Pat. Appl. EP 1207570 A2 20020522, 10 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2001-127531 20011118. PRIORITY: US 2000-PV249688 20001117; US 2001-884 20011115.
AB The invention relates to a new sandwich cathode design having 2 cathode active materials provided on opposite sides of a

current collector. The resp. active materials are similar in terms of, e.g., their rate capability, their energy d., or some other parameter. However, one material may have an advantage over the other in one characteristic, but is disadvantageous in another. The cathode is built in a sandwich configuration having a first one of the active materials sandwiched between 2 **current collectors**. Then, the second active material is provided in contact with at least the other side of one of the **current collectors**, and preferably facing the anode. An example of the cathode has the configuration: MnO2/**current collector**/silver vanadium oxide/ **current collector**/MnO2.

IT **7440-32-6**, Titanium, uses
(**current collector**; sandwich **cathode** design using chem. similar active materials for alkali metal **electrochem. cells**)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-02
ICS H01M004-06; H01M004-36; H01M004-48; H01M006-16; H01M004-66

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63

ST **battery** sandwich cathode design; implantable medical device **battery** sandwich cathode design

IT Prosthetic materials and Prosthetics
(implants, artificial heart pacemaker; sandwich cathode design using chem. similar active materials for alkali metal **electrochem. cells**)

IT Heart
(pacemaker, artificial; sandwich cathode design using chem. similar active materials for alkali metal **electrochem. cells**)

IT **Battery** cathodes
Primary **batteries**
(sandwich cathode design using chem. similar active materials for alkali metal **electrochem. cells**)

IT Alkali metals, uses
(sandwich cathode design using chem. similar active materials for alkali metal **electrochem. cells**)

IT 7439-88-5, Iridium, uses 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 12645-46-4, Iridium **oxide**
(**current collector coated** with; sandwich **cathode** design using chem. similar active materials for alkali metal **electrochem. cells**

)

IT 7429-90-5, Aluminum, uses 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses **7440-32-6**, Titanium, uses 7440-57-5, Gold, uses 11101-13-6 12597-68-1, Stainless steel, uses
(**current collector**; sandwich **cathode** design using chem. similar active materials for alkali metal **electrochem. cells**)

IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-29-2, γ-Valerolactone 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide 143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 872-50-4, uses 1313-13-9, Manganese dioxide, uses 2923-17-3 4437-85-8, Butylene carbonate 5137-45-1, 1-Ethoxy-2-methoxyethane 7439-93-2, Lithium, uses 7791-03-9, Lithium perchlorate 11105-02-5, Silver vanadium oxide 12057-24-8, Lithia, uses 13453-75-3, Fluorosulfuric acid, lithium salt 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 56525-42-9, Methyl propyl carbonate 90076-65-6 115028-88-1 132404-42-3
(sandwich cathode design using chem. similar active materials for alkali metal **electrochem. cells**)

L57 ANSWER 7 OF 16 HCA COPYRIGHT 2006 ACS on STN
136:372299 Sandwich cathode design for alkali metal **electrochemical cells** having circuit safety characteristics. Gan, Hong; Takeuchi, Esther S. (Wilson Greatbatch Ltd., USA). Eur. Pat. Appl. EP 1207567 A2 20020522, 11 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR. (English). CODEN: EPXXDW. APPLICATION: EP 2001-127228 20011116. PRIORITY: US 2000-PV249688 20001117; US 2001-969389 20011002.

AB A new sandwich cathode design has a first cathode active material of a relatively low energy d. but of a relatively high rate capacity sandwiched between 2 **current collectors** and with a second cathode active material having a relatively high energy d. but of a relatively low rate capability in contact with the opposite sides of the 2 **current collectors**. The cathode design is relatively safer under short circuit and abuse conditions than the cells having a cathode material of a relatively high energy

d. but a relatively low rate capability alone. A preferred **cathode** is: CFx/**current collector**/SVO/**current collector**/CFx. The SVO provides the discharge end of life indication since CFx and SVO cathode cells discharge under different voltage profiles. This is useful as an end-of-replacement indicator for an implantable medical device, such as cardiac pacemaker.

IT **7440-32-6**, Titanium, uses
(**current collector**; sandwich **cathode** design for alkali metal **electrochem. cells** having circuit safety characteristics)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-02
ICS H01M004-06; H01M004-36; H01M006-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63

ST **battery** sandwich cathode design implantable medical device; safety **battery** sandwich cathode design implantable medical device

IT Medical goods
(implantable; sandwich cathode design for alkali metal **electrochem. cells** having circuit safety characteristics)

IT Prosthetic materials and Prosthetics
(implants, artificial heart pacemaker; sandwich cathode design for alkali metal **electrochem. cells** having circuit safety characteristics)

IT Heart
(pacemaker, artificial; sandwich cathode design for alkali metal **electrochem. cells** having circuit safety characteristics)

IT **Battery** cathodes
Primary **batteries**
Safety
(sandwich cathode design for alkali metal **electrochem. cells** having circuit safety characteristics)

IT Alkali metals, uses
(sandwich cathode design for alkali metal **electrochem. cells** having circuit safety characteristics)

IT 7439-88-5, Iridium, uses 7440-44-0, Carbon, uses 7782-42-5, Graphite, uses 12645-46-4, Iridium **oxide**
(**current collector coated** with; sandwich **cathode** design for alkali metal

electrochem. cells having circuit safety characteristics)

IT 7429-90-5, Aluminum, uses 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses **7440-32-6**, Titanium, uses 7440-57-5, Gold, uses 12597-68-1, Stainless steel, uses
(**current collector**; sandwich **cathode** design for alkali metal **electrochem. cells** having circuit safety characteristics)

IT 1313-13-9, Manganese dioxide, uses 1314-62-1, Vanadium oxide (V2O5), uses 1317-37-9, Iron sulfide Fes 1344-70-3, Copper oxide 7439-93-2, Lithium, uses 7784-01-2, Silver chromate 11101-13-6 11105-02-5, Silver vanadium oxide 12019-06-6, Copper oxide (CuO2) 12031-65-1, Lithium nickel oxide linio2 12039-13-3, Titanium sulfide (TiS2) 12068-85-8, Iron sulfide Fes2 12162-79-7, Lithium manganese oxide limno2 12190-79-3, Cobalt lithium oxide colio2 12789-09-2, Copper vanadium oxide 13478-41-6, Copper fluoride cuf 20667-12-3, Silver oxide ag2o 22205-45-4, Copper sulfide cu2s 51311-17-2, Carbon fluoride 155645-82-2, Silver oxide ag2o2
(sandwich cathode design for alkali metal **electrochem. cells** having circuit safety characteristics)

IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-29-2, γ-Valerolactone 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4, 1,2-Dimethoxyethane 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide 143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 872-50-4, uses 2923-17-3 4437-85-8, Butylene carbonate 5137-45-1, 1-Ethoxy-2-methoxyethane 7791-03-9, Lithium perchlorate 13453-75-3, Fluorosulfuric acid, lithium salt 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate 29935-35-1, Lithium hexafluoroarsenate 33454-82-9 35363-40-7, Ethyl propyl carbonate 56525-42-9, Methyl propyl carbonate 90076-65-6 115028-88-1 132404-42-3 181183-66-4, Copper silver vanadium oxide 195144-63-9, Lithium oxide lio2
(sandwich cathode design for alkali metal **electrochem. cells** having circuit safety characteristics)

L57 ANSWER 8 OF 16 HCA COPYRIGHT 2006 ACS on STN
135:346862 Sandwich cathode design for alkali metal **electrochemical cell** with high discharge rate capability. Gan, Hong (Wilson Greatbatch Limited, USA). Eur. Pat. Appl. EP 1150366 A2 **20011031**, 19 pp. DESIGNATED STATES:

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2001-303866 20010427. PRIORITY: US 2000-560060 20000427.

AB A new sandwich cathode design having a first cathode active material of a relatively high energy d. but of a relatively low rate capability sandwiched between two **current collectors** and with a second cathode active material having a relatively low energy d. but of a relatively high rate capability in contact with the opposite sides of the two **current collectors**, is disclosed. The present cathode design is useful for powering an implantable medical device requiring a high rate discharge application.

IT **7440-32-6**, Titanium, uses
(sandwich cathode design for alkali metal **electrochem. cell** with high discharge rate capability)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-36
ICS H01M004-48; H01M006-16; H01M010-40; H01M004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 63

ST **battery** sandwich cathode design implantable medical device

IT Carbonaceous materials (technological products)
(coating; sandwich cathode design for alkali metal **electrochem. cell** with high discharge rate capability)

IT Prosthetic materials and Prosthetics
(implants; sandwich cathode design for alkali metal **electrochem. cell** with high discharge rate capability)

IT Primary **batteries**
(lithium; sandwich cathode design for alkali metal **electrochem. cell** with high discharge rate capability)

IT **Battery** cathodes
Battery electrolytes
(sandwich cathode design for alkali metal **electrochem. cell** with high discharge rate capability)

IT Fluoropolymers, uses
(sandwich cathode design for alkali metal **electrochem. cell** with high discharge rate capability)

IT Heart, disease
(ventricular fibrillation; sandwich cathode design for alkali metal **electrochem. cell** with high discharge

rate capability)

IT Nickel alloy, base
(sandwich cathode design for alkali metal **electrochem. cell** with high discharge rate capability)

IT 7439-88-5, Iridium, uses 7782-42-5, Graphite, uses 12645-46-4, Iridium **oxide**
(**coating**; sandwich cathode design for alkali metal **electrochem. cell** with high discharge rate capability)

IT 67-68-5, Dmso, uses 68-12-2, Dmf, uses 75-05-8, Acetonitrile, uses 79-20-9, Methyl acetate 96-48-0, γ-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-29-2, γ-Valerolactone 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4 111-96-6, Diglyme 112-49-2, Triglyme 127-19-5, Dimethyl acetamide 143-24-8, Tetraglyme 556-65-0, Lithium thiocyanate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 623-96-1, Dipropyl carbonate 629-14-1, 1,2-Diethoxyethane 872-50-4, n-Methylpyrrolidone, uses 1313-13-9, Manganese dioxide, uses 1314-62-1, Vanadium pentoxide, uses 1317-37-9, Iron sulfide fes 2923-17-3 4437-85-8, Butylene carbonate 7429-90-5, Aluminum, uses 7439-93-2, Lithium, uses 7440-02-0, Nickel, uses 7440-06-4, Platinum, uses 7440-25-7, Tantalum, uses **7440-32-6**, Titanium, uses 7440-48-4, Cobalt, uses 7440-57-5, Gold, uses 7784-01-2, Silver chromate 7791-03-9, Lithium perchlorate 9003-07-0, Polypropylene 11105-02-5, Silver vanadium oxide 12019-06-6, Copper oxide (CuO2) 12026-36-7, Silver vanadium oxide Ag2V4O11 12031-65-1, Lithium nickel oxide linio2 12039-07-5, Titanium sulfide tis 12057-24-8, Lithia, uses 12068-85-8, Iron sulfide fes2 12162-79-7, Lithium manganese oxide limno2 12190-79-3, Cobalt lithium oxide colio2 12597-68-1, Stainless steel, uses 12789-09-2, Copper vanadium oxide 13767-71-0, Cupric iodide 14024-11-4, Lithium tetrachloroaluminate 14283-07-9, Lithium tetrafluoroborate 14485-20-2, Lithium tetraphenylborate 15955-98-3, Lithium tetrachlorogallate 18424-17-4, Lithium hexafluoroantimonate 20667-12-3, Silver oxide ag2o 21324-40-3, Lithium hexafluorophosphate 22205-45-4, Copper sulfide cu2s 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 35363-40-7, Ethyl propyl carbonate 51311-17-2, Carbon fluoride 56525-42-9, Methyl propyl carbonate 90076-65-6 115028-88-1 132404-42-3 155645-82-2, Silver oxide ag2o2 371113-10-9
(sandwich cathode design for alkali metal **electrochem. cell** with high discharge rate capability)

IT 9002-84-0, Ptfe
(sandwich cathode design for alkali metal **electrochem. cell** with high discharge rate capability)

L57 ANSWER 9 OF 16 HCA COPYRIGHT 2006 ACS on STN

133:269464 **Battery** with an in-situ activation plated lithium anode. Neudecker, Bernd J.; Dudney, Nancy J.; Bates, John B. (Lockheed Martin Energy Research Corp., USA). PCT Int. Appl. WO 2000060689 A1 **20001012**, 28 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US6997 20000317. PRIORITY: US 1999-285326 19990402.

AB A thin-film rechargeable **battery** includes: a cathode film including a lithium transition metal **oxide**, an electrolyte **film** coupled to the cathode film, the electrolyte film being substantially nonreactive with oxidizing materials and with metallic lithium, an anode **current collector** coupled to the electrolyte film; and an overlying layer coupled to the anode **current collector**. The thin-film rechargeable **battery** is activated during an initial charge by electrochem. plating of a metallic lithium anode between the anode **current collector** and the electrolyte film. The plating of the anode during charging and the stripping of the anode layer during discharging are essentially reversible. Therefore, almost no diminishment of discharge capacity occurs, even after many discharge and charge cycles. Other advantages include no need for special packaging for shipping and handling. The **battery** eliminates the main drawbacks of the thin-film Li-ion **battery** (high capacity loss during the initial charge) and of the thin-film lithium **battery** (high air-sensitivity at all times, temp. limited to .apprx.100°, expensive prepn. of the lithium anode). The **battery** survives processing conditions that exceed those of a solder reflow process without any signs of degrdn.

IT **7440-32-6**, Titanium, uses
(anode grid; **battery** with in-situ activation plated lithium anode)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M010-36

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery** in situ activation plated lithium anode

IT **Battery** anodes

Electrodeposition
(**battery** with in-situ activation plated lithium anode)

IT Noble metals
(cathode grids; **battery** with in-situ activation plated lithium anode)

IT Secondary **batteries**
(lithium, thin-film; **battery** with in-situ activation plated lithium anode)

IT Fluoropolymers, uses
(overlying layer coupled to anode grid; **battery** with in-situ activation plated lithium anode)

IT 7439-89-6, Iron, uses 7439-91-0, Lanthanum, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-20-2, Scandium, uses **7440-32-6**, Titanium, uses 7440-47-3, Chromium, uses 7440-48-4, Cobalt, uses 7440-58-6, Hafnium, uses 7440-62-2, Vanadium, uses 7440-65-5, Yttrium, uses 11116-16-8, Titanium nitride
(anode grid; **battery** with in-situ activation plated lithium anode)

IT 7439-93-2, Lithium, uses 10377-52-3, Lithiumphosphate li3po4 12031-65-1, Lithium nickel oxide linio2 12057-17-9, Lithium manganese oxide limn2o4 12190-79-3, Cobalt lithium oxide colio2
(**battery** with in-situ activation plated lithium anode)

IT 1304-28-5, Barium oxide bao, uses 1304-56-9, Beryllium oxide beo, uses 1305-78-8, Calcium oxide cao, uses 1309-48-4, Magnesia, uses 1312-81-8, Lanthana 1314-11-0, Strontium oxide sro, uses 1314-20-1, Thoria, uses 1314-36-9, Yttria, uses 7440-25-7, Tantalum, uses 7440-33-7, Tungsten, uses 7440-41-7, Beryllium, uses 7440-67-7, Zirconium, uses 7447-41-8, Lithium chloride, uses 7550-35-8, Lithium bromide 7631-86-9, Silica, uses 7789-24-4, Lithium fluoride, uses 9002-84-0, Ptfe 9002-88-4 10043-11-5, Boron nitride bn, uses 10377-51-2, Lithium iodide 12033-76-0, Silicon nitride **oxide** si2n2o 12033-89-5, Silicon nitride, uses 12060-08-1, Scandium **oxide** sc2o3 12169-03-8, Lithium yttrium **oxide** liyo2 12209-15-3, Lithium scandium **oxide** lisco2 12232-41-6, Beryllium lithium **oxide** be2li2o3 12355-58-7, Aluminum lithium **oxide** alli5o4 12384-10-0, Lithium zirconium **oxide** li8zro6 13453-84-4, Lithium silicate li4sio4 24304-00-5, Aluminum nitride 25722-33-2, Parylene 39449-52-0, Lithium silicate li8sio6 56320-64-0, Beryllium lithium **oxide** (BeLi4O3) 57349-02-7, Cerium lithium **oxide** celio2 184905-46-2, Lithium nitrogen phosphorus **oxide**
(overlying **layer** coupled to anode grid; **battery** with in-situ activation plated lithium anode)

L57 ANSWER 10 OF 16 HCA COPYRIGHT 2006 ACS on STN
133:269463 Thin film lithium-ion rechargeable **battery**.

Johnson, Lonnie G. (Excellatron Solid State, Llc, USA). PCT Int. Appl. WO 2000060682 A1 **20001012**, 23 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US8576 20000331. PRIORITY: US 1999-286112 19990402.

AB A rechargeable, thin film lithium **battery** cell has an aluminum **cathode current collector** sandwiched between two crystd. cathodes. Each cathode has an electrolyte deposited thereon which is overlaid with a lithium anode. An anode **current collector** contacts the anode and substantially encases the **cathode collector, cathode**, electrolyte and anode.

IT **7440-32-6**, Titanium, uses
(Al cathode grid coated with; thin film lithium-ion rechargeable **battery**)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-58
ICS H01M010-02

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium thin film **battery**

IT Secondary **batteries**
(lithium; thin film lithium-ion rechargeable **battery**)

IT **Battery** anodes
Battery cathodes
(thin film lithium-ion rechargeable **battery**)

IT **7440-32-6**, Titanium, uses 7440-48-4, Cobalt, uses
(Al cathode grid coated with; thin film lithium-ion rechargeable **battery**)

IT 7429-90-5, Aluminum, uses
(cathode grid; thin film lithium-ion rechargeable **battery**)

IT 7439-93-2D, Lithium, intercalation compd., uses
(cathode; thin film lithium-ion rechargeable **battery**)

IT 7439-93-2, Lithium, uses 12190-79-3, Cobalt lithium **oxide** colio2
(thin **film** lithium-ion rechargeable **battery**)

L57 ANSWER 11 OF 16 HCA COPYRIGHT 2006 ACS on STN
129:345439 Lithium secondary **batteries** and their cathodes.
Kinugasa, Naoki; Yamagishi, Takashi (Nippon Glass Fiber Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 10308222 A2 **19981117** Heisei, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-116745 19970507.

AB The **battery cathode** comprises a **collector** plate having Sn-doped In or Sn **oxide layer** and active material layer supported on the plate. Secondary lithium **batteries** comprising the cathodes are also claimed. Decompn. of electrolytes and elution of collectors by overcharging are prevented.

IT **7440-32-6**, Titanium, uses
(**cathode collector**; lithium secondary **battery cathodes** comprising **collector** plates having Sn-doped Sn or In **oxide coatings**)

RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-66
ICS H01M004-02; H01M004-48; H01M010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST lithium secondary **battery cathode collector** coating; ITO coating **cathode collector** lithium **battery**; tin **oxide coating cathode collector**

IT **Battery** cathodes
(lithium secondary **battery cathodes** comprising **collector** plates having Sn-doped Sn or In **oxide coatings**)

IT Secondary **batteries**
(lithium; lithium secondary **battery cathodes** comprising **collector** plates having Sn-doped Sn or In **oxide coatings**)

IT 7429-90-5, Aluminum, uses 7439-89-6, Iron, uses 7439-92-1, Lead, uses 7440-02-0, Nickel, uses 7440-06-4, Platinum, uses 7440-22-4, Silver, uses 7440-31-5, Tin, uses **7440-32-6**, Titanium, uses 7440-47-3, Chromium, uses 7440-50-8, Copper, uses 7440-57-5, Gold, uses 7440-66-6, Zinc, uses
(**cathode collector**; lithium secondary **battery cathodes** comprising **collector** plates having Sn-doped Sn or In **oxide coatings**)

IT 1332-29-2, Tin oxide 50926-11-9, ITO

(lithium secondary **battery cathodes** comprising **collector** plates having Sn-doped Sn or In **oxide coatings**)

L57 ANSWER 12 OF 16 HCA COPYRIGHT 2006 ACS on STN
114:46580 Manufacture of nonaqueous secondary **batteries** having laminated cathode. Chi, Ignacio; Fang, Wei Chou (AT and T Bell Laboratories, USA). U.S. US 4963161 A **19901016**, 14 pp. (English). CODEN: USXXAM. APPLICATION: US 1989-377504 19890710.

AB In the manuf. secondary alkali metal **batteries**, the cathode-active mass comprises ≥1 transition metal chalcogenides. The chalcogenides are selected from NbSe2, NbSe3, NbS3, MoS2, TiS2, TiS3, TaSe3, TaS2, V6O13, CoO2, and MoO2. The cathode is manufd. by applying a paste of the active mass on both sides of an unperforated metal foil, e.g., Al, **current collector** and and compacting to a desired thickness, preferably by rollers.

IT **7440-32-6**, Titanium, uses and miscellaneous
(**cathodes** with unperforated **current collectors** from, chalcogenide, for nonaq. secondary **batteries**)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M006-00

INCL 029623500

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST chalcogenide **battery cathode** aluminum **collector**

IT Transition metal chalcogenides
(cathodes, laminated, with unperforated metal foil **current collectors**, for nonaq. secondary **batteries**)

IT Cathodes
(**battery**, chalcogenides, laminated, with unperforated metal foil **current collectors**)

IT 7429-90-5, Aluminum, uses and miscellaneous 7439-89-6, Iron, uses and miscellaneous 7439-92-1, Lead, uses and miscellaneous 7439-95-4, Magnesium, uses and miscellaneous 7440-02-0, Nickel, uses and miscellaneous **7440-32-6**, Titanium, uses and miscellaneous 7440-50-8, Copper, uses and miscellaneous 7440-66-6, Zinc, uses and miscellaneous
(**cathodes** with unperforated **current collectors** from, chalcogenide, for nonaq. secondary **batteries**)

IT 1317-33-5, Molybdenum sulfide (MoS2), uses and miscellaneous
12017-00-4, Cobalt **oxide** (CoO2) 12034-77-4, Niobium selenide (NbSe2) 12034-78-5, Niobium selenide (NbSe3) 12037-42-2, Vanadium **oxide** (V6O13) 12039-13-3, Titanium sulfide (TiS2) 12039-57-5, Tantalum selenide (TaSe3) 12143-72-5, Tantalum sulfide (TaS2) 12316-04-0, Niobium sulfide (NbS3) 12423-80-2, Titanium sulfide (TiS3) 18868-43-4, Molybdenum **oxide** (MoO2)
(cathodes, **laminated**, with unperforated metal foil **current collectors**, for nonaq. secondary **batteries**)

L57 ANSWER 13 OF 16 HCA COPYRIGHT 2006 ACS on STN
107:99744 Secondary nonaqueous **batteries**. Matsui, Toru; Yamaura, Junichi; Toyoguchi, Yoshinori (Matsushita Electric Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 62108462 A2 **19870519** Showa, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1985-249202 19851107.

AB Cathodes for secondary nonaq. alkali metal **batteries** have collectors of ≥2 sheets of porous material partly welded together. Two expanded Ti sheets were spot welded together at the center and at 3 spots near the periphery to form a **cathode collector**; spot welded to a cathode case; and 200 mg cathode-active mass of a mixt. contg. V2O5 100, carbon black 5, and PTFE 10 wt. parts was pressed into the case to obtain a cathode. A button-type **battery** using a Li anode, a 1 M LiClO4/1:1 (vol.) propylene carbonate-MeOC2H4OMe electrolyte, and this cathode had higher initial capacity, less capacity drop on charge-discharge cycling, less vol. change, and higher output voltage than a **battery** using a single-sheet **cathode collector**.

IT **7440-32-6**, Titanium, uses and miscellaneous
(expanded **sheets**, vanadium **oxide**. **cathodes** with multi-layer **collectors** of, for button-type secondary nonaq. **batteries**)

RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC ICM H01M004-74
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST button type **battery cathode collector**; vanadium oxide **cathode** titanium **collector**

IT Cathodes
(**battery**, button-type, vanadium **oxide**, with multi-**sheet** titanium collectors)

IT 1314-62-1, Vanadium pentoxide, uses and miscellaneous
(cathodes, with multi-sheet titanium collectors, for button-type secondary nonaq. **batteries**)
IT **7440-32-6**, Titanium, uses and miscellaneous
(expanded **sheets**, vanadium **oxide** **cathodes** with multi-layer **collectors** of, for button-type secondary nonaq. **batteries**)

L57 ANSWER 14 OF 16 HCA COPYRIGHT 2006 ACS on STN
100:76224 Cathode for thin-film lithium **battery**. (Hitachi, Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 58126679 A2 **19830728** Showa, 2 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1982-7595 19820122.
AB In a thin-film Li **battery** having a cathode of a metal chalcogenide (e.g.,TiS2) and a metal **oxide**, a thin **film** of a metal (e.g., Ti) is provided between the **cathode collector** (Fe) and the **cathode** material (TiS2) to improve elec. and mech. contacts between the **cathode collector** and **cathode** material.
IT **7440-32-6**, uses and miscellaneous
(films, between titanium sulfide cathode-active material and iron **current collector**, in lithium **battery**
)
RN 7440-32-6 HCA
CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC H01M010-40
CC 72-3 (Electrochemistry)
ST metal film cathode lithium **battery**; titanium film cathode lithium **battery**
IT Titanium chalcogenides
(cathode, with titanium film, for lithium **battery**)
IT Cathodes
(**battery**, titanium sulfide, for lithium **battery**
)
IT 7439-93-2, uses and miscellaneous
(anodes, **battery**, titanium chalcogenide cathode for)
IT 12039-13-3
(cathode, with film of of Ti, for lithium **battery**)
IT **7440-32-6**, uses and miscellaneous
(films, between titanium sulfide cathode-active material and iron **current collector**, in lithium **battery**
)

L57 ANSWER 15 OF 16 HCA COPYRIGHT 2006 ACS on STN

100:41846 Electrolytic production of hydrogen peroxide and its use. Stucki, Samuel (BBC A.-G. Brown, Boveri und Cie., Switz.). Eur. Pat. Appl. EP 95997 A1 **19831207**, 23 pp. DESIGNATED STATES: R: CH, DE, FR, GB, IT, LI. (German). CODEN: EPXXDW. APPLICATION: EP 1983-710018 19830411. PRIORITY: CH 1982-3294 19820528.

AB A solid-**electrolyte cell** was used to produce H2O2 from H2O and O or from an aq. soln. and O. A membrane of Nafion 120, has a precious metal mixed oxide, (Ru0.5Ir0.5)O2, on 1 side as the anode and on the other side a graphite coating as the cathode. The anodic **current collector** was sintered Ti foil and the cathodic counterpart was a Ni screen. Salt-contg. H2O was electrolyzed with a stream of damp O entering the cathode chamber. A c.d. of 10 mA/cm2 was used at 1-1.4 V. The H2O2 produced in the cathode chamber was .apprx.3%.

IT **7440-32-6**, uses and miscellaneous
(anode, platinum metal **oxide-coated**, in hydrogen peroxide manuf.)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC C25B001-30; C25B009-00

CC 72-9 (Electrochemistry)

IT **Electrolytic cells**
(for hydrogen peroxide manuf., solid-electrolyte)

IT **7440-32-6**, uses and miscellaneous
(anode, platinum metal **oxide-coated**, in hydrogen peroxide manuf.)

IT 7722-84-1P, preparation
(prodn. of, solid-**electrolyte cell** for)

L57 ANSWER 16 OF 16 HCA COPYRIGHT 2006 ACS on STN

98:43045 Permionic membrane. Hillman, Patrick E.; White, Preston S. (PPG Industries, Inc. , USA). U.S. US 4361601 A **19821130** , 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1980-207592 19801117.

AB This membrane useful in brine electrolysis is made by contacting the membrane with a plasticizer and an electroconductive material, and hot pressing the permionic membrane, the plasticizer, and the electroconductive material. Thus, an 11 mil thick Flemion HB permionic membrane was coated with bis(2-ethylhexyl) isophthalate (plasticizer) contg. Pt black and Ag2O was hot pressed at 200° and 20 ton for 5 min. A cell was assembled with a RuO2-coated mesh Ti anode pressed against the anodic surface of the permionic membrane by a RuO2-coated Ti screen. The **cathode**

current collector was a Ni screen.

IT **7440-32-6**, uses and miscellaneous
(anodes, ruthenium **oxide-coated**, for brine electrolysis)

RN 7440-32-6 HCA

CN Titanium (8CI, 9CI) (CA INDEX NAME)

Ti

IC B05D005-12

INCL 427123000

CC 72-9 (Electrochemistry)
Section cross-reference(s): 37

IT **Electrolytic cells**
(diaphragm, permionic, for brine electrolysis)

IT **7440-32-6**, uses and miscellaneous
(anodes, ruthenium **oxide-coated**, for brine electrolysis)